Volume Contents 1989

NUMBER 1

i Contributors to this issue

1 Corrigendum

TETRAHEDRON REPORT NUMBER 246

Thomas N. Sorrell 3 Synthetic models for binuclear copper proteins

Miguel E. Alonso and **María del Carmen García** 69 Kinetics of the dirhodium tetraacetate catalyzed decomposition of ethyl diazoacetate in 1,4-dioxane. Is nitrogen involved in the transition state?

Paul Dowd and **Soo-Chang Choi** 77 Novel free radical ring-expansion reactions

Janette Houk and **George M. Whitesides** 91 Characterization and stability of cyclic disulfides and cyclic dimeric bis(disulfides)

Wilfred R. Chan, Winston F. Tinto, Percy S. Manchand, Louis J. Todaro and **Leon S. Ciereszko** 103 New cembranoids from *Plexaura*

Leo A. Paquette and **Jeffrey A. Oplinger** 107 Limitations in the application of anionic oxy-Cope sigmatropy to elaboration of the forskolin nucleus

Egon Fanghänel, Bernd Kordts and **Andreas M. Richter** 125 Formation and isomerization of 3H, 6H-2,5-bisaryl-1,2-thiazolino [5,4-*d*]1,2-thiazoline-3,6-dithiones—derivatives of a new heterocyclic system

Elmar Vilsmaier, Rainer Adam, Peter Altmeier and **Regina Cronauer** 131 Functionalized chloroenamines in aminocyclopropane synthesis—II. Tricyclic amidines from carbamoylated chloroenamines

Eric Brown et **Alain Daugan** 141 Lignanes—X. Préparation des (*R*)- (+) et (*S*)- (−) - β-pipéronyl et β-vératryl- γ-butyrolactones et leur utilisation dans la synthèse totale de lignanes optiquement actifs

Alain Burger, Jean-Pierre Roussel, Charles Hetru, Jules A. Hoffmann and **Bang Luu** 155 Allenic cholesteryl derivatives as inhibitors of ecdysone biosynthesis

H. Olivier, Y. Chauvin and **L. Saussine** 165 Reduction of aromatic ketones by some rare earth metals in ether. Reversibility of the reduction steps

Alain Boudin, Geneviève Cerveau, Claude Chuit, Robert J. P. Corriu and **Catherine Reyé** 171 Grignard reagents as powders: preparation and reactivity

B. Banaigs, G. Jeanty, C. Francisco, P. Jouin, J. Poncet, A. Heitz, A. Cave, J. C. Prome, M. Wahl and F. Lafargue	181	Didemnin B: comparative study and conformational approach in solution
Malcolm J. Thompson and Petrus J. Zeegers	191	A theoretical study on the two-phase nitration of phenols
José Luis García Ruano, Concepción Pedregal and Jesús H. Rodriguez	203	Basic media behavior of N-[2-(1-hydroxy-2-Y-ethyl)phenyl] ethyl carbamates (Y=SMe, SOMe, SO_2Me, H, Br, CN)
Filippo Imperato	215	Two novel flavonol glycosides from the fern *Cheilanthes fragrans*
I. M. Helps, D. Parker, J. R. Morphy and J. Chapman	219	General routes for the synthesis of mono, di and tri-N-substituted derivatives of cyclam
Marek Chmielewski, Zbigniew Kałuza, Wojciech Abramski, Jacek Grodner, Czesław Bełzecki and Petr Sedmera	227	Optically pure 3,4-disubstituted azetidinones from sugars
I. Panfil, C. Bełzecki, M. Chmielewski and K. Suwińska	233	Reaction of α,β-unsaturated sugar lactones with formaldoxime
K. Clinch, C. J. Marquez, M. J. Parrott and R. Ramage	239	Synthesis of substituted tetrahydropyridines and *M*-hydroxybenzoic acids
Ian R. Dunkin, Charles J. Shields and Helmut Quast	259	The photochemistry of 1,4-dihydro-5*H*-tetrazole derivatives isolated in low-temperature matrices
F. J. Lopez Herrera, M. S. Pino Gonzalez, M. Nieto Sampedro and R. M. Dominguez Aciego	269	Stereoselectivity in the formation of unsaturated Wittig products and stereospecificity in their electrophile induced cyclization to C-glycosides
Giuseppe Corriero, Anna Madaio, Luciano Mayol, Vincenzo Piccialli and Donato Sica	277	Rotalin A and B, two novel diterpene metabolites from the encrusting Mediterranean sponge *Mycale rotalis* (Bowerbank)
Manobjyoti Bordoloi, Jadab C. Sarmah and Ram P. Sharma	289	Biomimetic transformation of a guaianolide to a pseudoguaianolide
Reija Jokela and Mauri Lounasmaa	303	Easy functionalization of C(17) in the desethyleburnamonine series
G. Ariamala and K. K. Balasubramanian	309	Thermal behaviour of aryl γ-halopropargyl ethers
George W. J. Fleet, Nigel G. Ramsden and David R. Witty	319	Practical synthesis of deoxymannojirimycin and mannonolactam from L-gulonolactone. Synthesis of L-deoxymannojirimycin and L-mannonolactam from D-gulonolactone
George W. J. Fleet, Nigel G. Ramsden and David R. Witty	327	A practical synthesis of deoxymannojirimycin and of (2*S*, 3*R*, 4*R*, 5*R*)-3,4,5-trihydroxypipecolic acid from D-glucose

K. Michał Pietrusiewicz, Witold Wiśniewski and Maria Zabłocka — 337 Optically active phosphine oxides—VIII. Synthesis of nonsymmetrical 1,2-diphosphinylethenes and related systems

I Instructions to Contributors

NUMBER 2

TETRAHEDRON SYMPOSIA-IN-PRINT NUMBER 35

RECENT DEVELOPMENTS IN ORGANOCOPPER CHEMISTRY

Guest Editor: BRUCE H. LIPSHUTZ
University of California, Santa Barbara, California, U.S.A.

i Contributors to this issue

vii Announcement: *Tetrahedron* Symposia-in-Print

xi Preface

Satoshi Matsuzawa, Yoshiaki Horiguchi, Eiichi Nakamura and Isao Kuwajima — 349 Chlorosilane-accelerated conjugate addition of catalytic and stoichiometric organocopper reagents

Edward Piers, J. Michael Chong and Howard E. Morton — 363 Reaction of (trimethylstannyl)copper(I) reagents with α,β-acetylenic esters. Stereocontrolled synthesis of alkyl (*E*)- and (*Z*)-3-trimethylstannyl-2-alkenoates

A. Alexakis and D. Jachiet — 381 A new approach to conjugated dienes; synthesis of the pheromones of *Lobesia botrana* and *Bombyx mori*

James A. Marshall, Joseph D. Trometer and Darryl G. Cleary — 391 Stereoselective S_N2' additions of organocuprates to homochiral acyclic vinyloxiranes

Masatoshi Kawashima, Toshio Sato and Tamotsu Fujisawa — 403 A facile method for synthesis of three carbon-homologated carboxylic acid by regioselective ring-opening of β-propiolactones with organocopper reagents

Ian Fleming, Michael Rowley, Purificación Cuadrado, Ana M. González-Nogal and Francisco J. Pulido — 413 The silyl-cupration and stannyl-cupration of allenes

Steven H. Bertz and Gary Dabbagh — 425 Organocopper reagents in dimethyl sulfide

Toshiro Ibuka, Miwa Tanaka, Hisao Nemoto and Yoshinori Yamamoto — 435 Regio- and stereo-selectivity in the reaction of methyl 4,5-epoxy-2-hexenoate with methylcopper reagents

Reuben D. Rieke, Richard M. Wehmeyer, Tse-Chong Wu and Greg W. Ebert — 443 New organocopper reagents prepared utilizing highly reactive copper

Guy Casy and **Richard J. K. Taylor** 455 The synthesis of 2,3-disubstituted cyclopentenones using the Ramberg-Bäcklund reaction in conjunction with organocopper chemistry

Y. Pan, D. K. Hutchinson, M. H. Nantz and **P. L. Fuchs** 467 S_N2' additions of cuprates to sulfone and ester-polarized cyclopentenylic systems

Wolfgang Oppolzer, Arend J. Kingma and **Giovanni Poli** 479 Asymmetric 1,4-additions of Gilman reagents to α,β-disubstituted (E)-enoylsultams/"enolate" protonations

Louis Hamon and **Jacques Levisalles** 489 π-Accepting ligands in cuprate reactions

Russell J. Linderman, Alex Godfrey and **Kelly Horne** 495 Applications of α-alkoxyorganocuprate reagents in the regiospecific synthesis of cyclic homoaldol products

J. F. Normant, A. Alexakis, A. Ghribi and **P. Mangeney** 507 Boron fluoride promoted cleavage of acetals by organocopper reagents: application to asymmetric synthesis

Robin A. J. Smith and **A. Samuel Vellekoop** 517 An investigation of the electron transfer properties of modified organocopper reagents and higher-order cuprates

Beritte Christenson, Thomas Olsson and **Christina Ullenius** 523 Addition of Me_2CuLi to *ortho*-substituted methyl cinnamates: an NMR study of the π-complex formation

Mikael Bergdahl, Eva-Lotte Lindstedt, Martin Nilsson and **Thomas Olsson** 535 Organocopper-iodosilane combinations in conjugate additions

E. J. Corey, Francis J. Hannon and **Neil W. Boaz** 545 Coordinatively induced 1,4-diastereoselection in the reaction of acyclic α,β-enones with organocopper reagents. A new type of organocopper reagent

Sunaina Sharma and **Allan C. Oehlschlager** 557 Chemical and spectroscopic investigations of trialkylsilylcuprates derived from CuCN

Gerard van Koten and **Johann T. B. H. Jastrzebski** 569 Polynuclear aryl-copper species and neutral aryl-cuprates with a chiral-$CH(Me)NMe_2$ *ortho* substituent

I Instructions to Contributors

NUMBER 3

i Contributors to this issue

iii David Ginsberg (1920-1988): Obituary

579 Corrigendum

TETRAHEDRON REPORT NUMBER 247

Gerald W. Buchanan 581 Applications of ^{15}N NMR spectroscopy to the study of molecular structure, stereochemistry and binding phenomena

---

Philip George and **Charles W. Bock** 605 A test of the AM1 model for calculating energies and structural properties of benzene, toluene, naphthalene, 1-methyl and 2-methylnaphthalene

Anthony Poiner, Valerie J. Paul and **Paul J. Scheuer** 617 Kumepaloxane, a rearranged trisnor sesquiterpene from the bubble shell *Haminoea cymbalum*

J. Michael Chong 623 Enantioselective synthesis of sitophilate, the granary weevil aggregation pheromone

Eusebio Juaristi and **Domingo Madrigal**	629	Use of hexamethylphosphoramide (HMPA) in the alkylation of aromatic amines: synthesis of azetidines, pyrrolidines, piperidines and hexahydroazepines
Sumio Shimizu and **Masaru Ogata**	637	The fluoride-induced reaction of phenylthio-, methylthio- and methoxy-substituted silylmethylazoles with carbonyl compounds
Kiyoshi Tomioka, Fumio Masumi, Toyoharu Yamashita and **Kenji Koga**	643	Stereoselective reactions—XV. Total synthesis of (+)-ivalin by utilizing asymmetric double alkylation reaction of α,β-unsaturated aldimine
Toshiki Tanaka, Yasuki Yamada, Seiichi Uesugi and **Morio Ikehara**	651	Preparation of a new phosphorylating agent: *S*-(N-monomethoxytritylaminoethyl)-*O*-(*o*-chlorophenyl)phosphorothioate and its application in oligonucleotide synthesis
Dirk Neunert, Harald Klein and **Peter Welzel**	661	Forskolin: some studies on ring B forming reactions
K. Königsberger, K. Faber, Ch. Marschner, G. Penn, P. Baumgartner and **H. Griengl**	673	Enzymatic resolution of *endo*-bicyclo[2.2.1]hept-2-yl butyrates and related compounds: steric requirements in the bridge-region
Lutz F. Tietze and **Christoph Bärtels**	681	Synthesis of the monoterpene alkaloid bakankosin from secologanin
Dieter Hoppe, Hans Schmincke and **Heinz-Werner Kleemann**	687	Studies toward the total synthesis of 1-oxacephalosporins—I. 3-Amino-4-thio-2-azetidinones with protected γ,γ'-dihydroxyalkenoate side chain
Dieter Hoppe, Hans Schmincke and **Heinz-Werner Kleemann**	695	Studies toward the total synthesis of 1-oxacephalosporins—II. Synthesis and reactions of oxazolinoazetidinones bearing a γ,γ'-bis-oxygen-functionalized β-methylbutenoate side chain
Hans Schmincke and **Dieter Hoppe**	701	Studies toward the total synthesis of 1-oxacephalosporins—III. Synthesis of a (±)-*trans*-7-benzoylamino-3-carbamoyloxymethyl-1-oxa-3-cephem-3-carboxylate from 1,3-dihydroxyacetone
Jacques Brocard, Lydie Pelinski, Jacques Lebibi, Madani Mahmoudi et **Lucien Maciejewski**	709	Induction d'un centre chiral benzylique sur la formation d'un centre chiral métallocénique. Complexation d'alcools benzyliques par le chrome hexacarbonyle
J. Zylber, L. Ouazzani-Chahdi, D. Lefort, A. Chiaroni and **C. Riche**	721	Addition of electrophilic radicals to caffeine: synthetic aspects and influence of the peroxidic initiators
Sadek Zehani, Jian Lin and **Georges Gelbard**	733	Reductions with NADH models—II. Asymmetric induction with sugar substituted Hantzsch esters or with chiral Lewis acids
D. Cantacuzène and **C. Guerreiro**	741	Optimization of the papain catalyzed esterification of amino acids by alcohols and diols
Gerrit L'abbé and **Linda Beenaerts**	749	Influence of electron-withdrawing N-1 substituents on the thermal behaviour of 5-azido-1,2,3-triazoles
N. Shobana, P. Yeshoda and **P. Shanmugam**	757	A convenient approach to the synthesis of prenyl-, furo- and pyrano-quinoline alkaloids of the Rutaceae
Y. Khandelwal, B. R. Jotwani, P. K. Inamdar, N. J. de Souza and **R. H. Rupp**	763	Isolation, structure elucidation and synthesis of 1-deoxyforskolin
Deepa Bakshi, Verinder K. Mahindroo, R. Soman and **Sukh Dev**	767	Monoterpenoids—VII. A simple synthesis of (−)-*cis*-caronaldehydic acid hemiacetal from (+)-car-3-ene

Andreina Corsico Coda, Giovanni Desimoni, Giuseppe Faita, Pierpaolo Righetti and **Gianfranco Tacconi**	775	Solvent effect as the result of frontier molecular orbital interaction—IV. A parallel between solvent effect and acid catalysis in the intramolecular hetero-Diels-Alder reaction
Andrew B. Holmes and **Nigel C. Madge**	789	Synthesis of 4,4-disubstituted cyclohexenones—I. Baeyer-Villiger fragmentation of 1-methoxybicyclo[2.2.2]oct-5-enones
A. E. Frissen, A. T. M. Marcelis and **H. C. van der Plas**	803	Ring-transformations of pyrimidines by intramolecular Diels-Alder reactions. Synthesis of annelated pyridines
A. Amorese, A. Arcadi, E. Bernocchi, S. Cacchi, S. Cerrini, W. Fedeli and **G. Ortar**	813	Conjugate addition vs vinylic substitution in palladium-catalysed reaction of aryl halides with β-substituted-α,β-enones and -enals
Peter J. Garratt, Christopher J. Hobbs and **Roger Wrigglesworth**	829	Synthesis of 2-amino-4H-3,1-benzoxazines from diphenyl cyanocarbonimidate. Facile replacement of the N-cyanoimine function by nitrogen nucleophiles
V. Balasubramaniyan and **N. P. Argade**	835	Reactions of cyclic anhydrides—XVI. A novel approach to angular oxygenated pyrrolobenzoxazinones
K. Mach, J. Nováková, V. Hanuš and **J. B. Raynor**	843	Gas-phase radicals in co-condensed adamantane matrix: proton splitting in the ESR spectrum of the cycloheptatrienylperoxyl radical
Axel R. Stoit and **Upendra K. Pandit**	849	Models of folate cofactors—XX. An approach to deethyleburnamonine
J.-C. Wu and **J. Chattopadhyaya**	855	New synthesis of 2',3'-dideoxy-3'-C-cyano-2'-substituted thymidines by Michael addition reactions
Núria Torra, Fèlix Urpí and **Jaume Vilarrasa**	863	N-Nitrosation and N-nitration of lactams. From macrolactams to macrolactones
Daniele Bianchi, Pietro Cesti and **Paolo Golini**	869	Enzymatic preparation of optically active α and β-hydroxyaldehydes
K. Ganesan and **C. N. Pillai**	877	Intramolecular rearrangement of benzyl benzoate over oxide catalysts. Formation of diphenylmethane and anthrone
John R. Nicholson, Gurdial Singh, Kevin J. McCullough and **Richard H. Wightman**	889	Cycloaddition reactions of N-alkoxycarbonyl-4-quinolones
	I	Instructions to Contributors

NUMBER 4

TETRAHEDRON SYMPOSIA-IN-PRINT NUMBER 36

ORGANOTIN COMPOUNDS IN ORGANIC SYNTHESIS

Guest Editor: YOSHINORI YAMAMOTO
Tohoku University, Sendai, Japan

	i	Contributors to this issue
	vii	Announcement: *Tetrahedron* Symposia-in-Print
	xi	Preface
Jack E. Baldwin, Robert M. Adlington and **Jeremy Robertson**	909	Carbocyclic ring expansion reactions via radical chain processes
Kyoko Nozaki, Koichiro Oshima and **Kiitiro Utimoto**	923	Et_3B Induced radical addition of Ph_3SnH to acetylenes and its application to cyclization reaction
Bernd Giese, Torsten Linker and **Ralf Muhn**	935	Biomimetic chain elongation of carbohydrates via radical carbon-carbon bond formation
Stephen Hanessian and **Marco Alpegiani**	941	Highly stereoselective free radical C-6-allylation of penams—synthesis of a novel β-lactamase inhibitor
Wilhelm P. Neumann, Horst Hillgärtner, Kim M. Baines, Rita Dicke, Klaus Vorspohl, Uwe Kobs and **Udo Nussbeutel**	951	New ways of generating organotin reactive intermediates for organic synthesis
Masanori Kosugi, Hiroyuki Tamura, Hiroshi Sano and **Toshihiko Migita**	961	Palladium-catalyzed reaction of organic halides with organotin compounds involving olefin insertion: synthesis of 2,3-disubstituted norbornanes
T. N. Mitchell, K. Kwetkat, D. Rutschow and **U. Schneider**	969	Some chemistry of organotin synthons containing two organotin moieties
David R. Tueting, Antonio M. Echavarren and **J. K. Stille**	979	Palladium catalyzed coupling of organostannanes with vinyl epoxides
Amera J. Majeed, Øyvind Antonsen, Tore Benneche and **Kjell Undheim**	993	Stannylation reactions and cross-couplings in pyrimidines
Caroline Hull, Simon V. Mortlock and **Eric J. Thomas**	1007	On the stereoselectivity of reactions between α-methylbut-2-enylstannanes and aldehydes
Jean-Paul Quintard, Gilles Dumartin, Bernard Elissondo, Alain Rahm and **Michel Pereyre**	1017	Selectivity in reactions involving α-alkoxyallyltributyltins
James M. Coxon, Stephen J. van Eyk and **Peter J. Steel**	1029	Diastereoselectivity, diastereofacial selectivity and regioselectivity in the reactions of cinnamyl chloride with aldehydes mediated by tin and aluminium

James A. Marshall and **Wei Yi Gung**	1043	S_E' Addition of homochiral α-alkoxyallylstannanes to aldehydes
Scott E. Denmark, Eric J. Weber, Thomas M. Wilson and **Timothy M. Willson**	1053	Stereochemical and spectroscopic studies on the reaction of allylstannanes with aldehydes
Yoshinori Naruta, Yutaka Nishigaichi and **Kazuhiro Maruyama**	1067	NMR study on transmetallation reaction between allyltins and $SnCl_4$
M. Andrianome, K. Häberle and **B. Delmond**	1079	Allyl- and benzylstannanes, new reagents in terpenic synthesis
Edward Piers and **Veranja Karunaratne**	1089	Organotin-based bifunctional reagents: 4-chloro-2-lithio-1-butene and related substances. Methylenecyclopentane annulations. Total synthesis of (±)-$\Delta^{9(12)}$-capnellene
Kung K. Wang, Kai-Hsuan Chu, Yuan Lin and **Jyun-Hung Chen**	1105	Stereoselective synthesis of di- and trisubstituted alkenylstannanes and 2-(trimethylstannyl)-1,3-butadienes. Conversion of the trisubstituted alkenylstannanes to the tetrasubstituted alkenes
Bernd Wrackmeyer, Gudrun Guldner and **Sultan T. Abu-Orabi**	1119	Organoboration of 3-(trimethylstannyl)-2-propynyl-1-ethers
Cristina Nativi, Maurizio Taddei and **André Mann**	1131	Stannyldienes, new tools for organic synthesis. Preparation and reactivity
Bernard Jousseaume and **Patrice Villeneuve**	1145	[4+2] Cycloadditions of acetylenic organotins: synthetic applications of polyfunctional cyclic vinyltins
Mark S. Cooper, Robin A. Fairhurst, Harry Heaney, George Papageorgiou and **Robert F. Wilkins**	1155	Mannich reactions of aryltrialkylstannanes in aprotic solvents
Thomas V. Lee, Kevan A. Richardson, Karen L. Ellis and **Naina Visani**	1167	The use of organotin chemistry to achieve chemospecificity in a one-pot [3+2] annulation sequence
Michael G. O'Shea and **William Kitching**	1177	Organotin and -mercury routes to enones, dienones and spiroacetals
Giuseppe Tagliavini, Daniele Marton and **Donatella Furlani**	1187	Organotins as etherification catalysts—II. Catalytic conversion of alcohols to open-chain and cyclic ethers by organotin trichlorides
Nobuharu Iwasawa, Takeshi Yura and **Teruaki Mukaiyama**	1197	Catalytic use of tin(II) reagents in organic synthesis
Tsuneo Sato, Junzo Otera and **Hitosi Nozaki**	1209	Activation and synthetic applications of thiostannanes. Thioalkoxylation of acetals
Marcel Gielen, Muriel Mélotte, Ghanem Atassi and **Rudolph Willem**	1219	Synthesis, characterization and antitumour activity of 7,7-di-*n*-butyl-5,9-dioxo-6,8-dioxa-7-stanna-spiro[3,5]nonane, a di-*n*-butyltin(IV) analog of 'paraplatin', and of a series of di-*n*-butyltin(IV) derivatives of mono- and disubstituted malonic acids
	I	Instructions to Contributors

NUMBER 5

	i	Contributors to this issue
	1231	Corrigendum
		TETRAHEDRON REPORT NUMBER 248
Jih Ru Hwu and **Bryant A. Gilbert**	1233	Counterattack reagents in organic reactions and in syntheses
Richard S. Glass, Jeffrey L. Broeker and **Mark E. Jatcko**	1263	Distinguishing ionization from sulfur *p*-type lone pair orbitals and carbon π-molecular orbitals by He I/He II photoelectron spectroscopy
George A. Doss, Christopher J. Silva and **Carl Djerassi**	1273	Biosynthetic studies of marine lipids—XXII. Calysterol: some aspects of sterol cyclopropene biosynthesis in the sponge *Calyx nicaeensis*
Judith C. Gallucci, Deok-Chan Ha and **David J. Hart**	1283	Preparation of aminosaccharides using ester-imine condensations: syntheses of methyl N-benzoylacosaminide and methyl N-[oxo(phenylmethoxy)acetyl]daunosaminide from (*S*)-ethyl 3-hydroxybutyrate
Spencer Knapp, Joseph Ziv and **Joseph D. Rosen**	1293	Synthesis of the food mutagens MeIQx and 4,8-DiMeIQx by copper(I) promoted quinoxaline formation
Robin G. Clewley, Gordon G. Cross, Alfred Fischer and **George N. Henderson**	1299	Formation of 4-halo-4-nitrocyclohexa-2,5-dienones on nitration of *p*-halophenols and *p*-halophenyl acetates
Nathan Kornblum and **Michael J. Fifolt**	1311	Electron-transfer substitution reactions: facilitation by the cyano group
Chia-Lin J. Wang, Walter A. Gregory and **Mark A. Wuonola**	1323	Chiral synthesis of DuP 721, a new antibacterial agent
Hiromitsu Takayama, Kazunao Masubuchi, Mariko Kitajima, Norio Aimi and **Shin-ichiro Sakai**	1327	A biomimetic construction of humantenine skeleton
Shigeo Katsumura, Akihiko Kimura and **Sachihiko Isoe**	1337	Total synthesis of (±)-jolkinolide A, B, and E utilizing a new mild esterification followed by intramolecular Wittig-Horner reaction
Jacques Mauger, Toru Nagasawa and **Hideaki Yamada**	1347	Synthesis of various aromatic amide derivatives using nitrile hydratase of *Rhodococcus rhodochrous* J1
Gernot Schneider, Günther Sembdner, Klaus Schreiber and **Bernard O. Phinney**	1355	Partial synthesis of some physiologically relevant gibberellin glucosyl conjugates
Volker Brandmeier and **Martin Feigel**	1365	A macrocycle containing two biphenyl and two alanine subunits, synthesis and conformation in solution
Edda Gössinger and **Renate Müller**	1377	A versatile regio- and stereospecific annulation method—I. Preparation of 1-ethoxy-oxatricyclo[4.2.1.$0^{4,8}$]nonan-7-one dimethylketals and homologue systems
Karin Böhm, Edda Gössinger and **Renate Müller**	1391	A versatile regio- and stereospecific annulation method—II. Formation of substituted five- or six-membered ring systems by acidic fragmentation of 1-ethoxy-2-oxatricyclo[4.2.1.$0^{4,8}$]nonan-7-one derivatives

Solange Adam	1409	An expedient and high yielding synthesis of mefloquine, via fluoride ion-catalyzed Wittig rearrangement—I
Jean-Marie Poirier et **Catherine Vottero**	1415	Mononitration de phénols par des nitrates métalliques
S. Sibille, S. Mcharek and **J. Perichon**	1423	Electrochemical trifluoromethylation of carbonyl compounds
Didier Bernard, Alain Doutheau, Jacques Gore, Jacques Moulinoux, Véronique Quemener, Jacqueline Chantepie and **Gérard Quash**	1429	γ-Amino α-acetylenic epoxides. Preparation and biological activity due to an aldehyde reductase inhibition
Somnath Ghosh, Indira Datta, Rupak Chakraborty, Tapas Kumar Das, Judhajit Sengupta and **Dipak Chandra Sarkar**	1441	Studies on oxygen heterocycles—I. Acid catalysed and photochemical reactions of some aryldiazoketones
Ben J. M. Jansen, Jacoba A. Kreuger and **Aede de Groot**	1447	The conversion of (-)- and (+)-dihydrocarvone into chiral intermediates for the synthesis of (-)-polygodial, (-)-warburganal and (-)-muzigadial
Jack E. Baldwin, Michael North, Anthony Flinn and **Mark G. Moloney**	1453	Synthesis of nonproteinogenic amino acids—II. Preparation of a synthetic equivalent of the γ anion synthon for asymmetric amino acid synthesis
Jack E. Baldwin, Michael North, Anthony Flinn and **Mark G. Moloney**	1465	Synthesis of nonproteinogenic amino acids—III. Conversion of glutamic acid into γ, δ-unsaturated α-amino acids
José L. Marco	1475	Chiral precursors for syntheses of fur monoterpenes
F. Alcudia, I. Fernández, M. Trujillo, F. Zorrilla and **E. Marhuenda**	1491	Synthesis and conformational analysis of 2-methylthioderivatives of 1-(2'-furyl)ethanol and their O-methyl derivatives
Giuliana Cardillo, Mario Orena, Marta Romero and **Sergio Sandri**	1501	Enantioselective synthesis of 2-benzyloxy alcohols and 1,2-diols via alkylation of chiral glycolate imides. A convenient approach to optically active glycerol derivatives
Arun K. Gupta, Hiriyakkanavar Ila and **Hiriyakkanavar Junjappa**	1509	Studies on Diels-Alder cycloadditions of vinylketene dithioacetals
P. G. Baraldi, A. Barco, S. Benetti, V. Ferretti, G. P. Pollini, E. Polo and **V. Zanirato**	1517	Synthetic studies towards forskolin
Jaime de la Zerda, Gabriela Barak and **Yoel Sasson**	1533	Selective monoetherification and monoesterification of diols and diacids under phase-transfer conditions
G. Remaud, N. Balgobin, C. Glemarec and **J. Chattopadhyaya**	1537	Why do all lariat RNA introns have adenosine as the branch point nucleotide? Conformational studies on the implication of the branch-point modification by guanine, uracil or cytosine in the naturally-occurring branched tetranucleotide by ^{1}H- and ^{31}P-NMR spectroscopy
John Mann and **Barbara Pietrzak**	1549	Synthesis of 1-α-hydroxytestosterone
Pier L. Barili, Giancarlo Berti, Giorgio Catelani, Fabrizia Colonna, Ettore Mastrorilli and **Marco Paoli**	1553	Preparation of isobutyl 3,4-anhydro-2,6-dideoxy-DL-α-*lyxo*-hexopyranoside and its kinetic resolution with microsomal epoxide hydrolase

Juan A. Hueso-Rodríguez and Benjamín Rodríguez 1567 A new and efficient route to optically active drimanes. Synthesis of (+)-winterin, (+)-confertifolin, (+)-isodrimenin and (+)-bicyclofarnesol

I Instructions to Contributors

NUMBER 6

i Contributors to this issue

1577 Corrigenda

TETRAHEDRON REPORT NUMBER 249

Peter W. Rabideau 1579 The metal–ammonia reduction of aromatic compounds

R. M. Moriarty, R. K. Vaid, V. T. Ravikumar, T. E. Hopkins and P. Farid 1605 Hypervalent iodine oxidation of 5-substituted and 4,5-disubstituted pyrazol-3(2*H*)-ones: a facile synthesis of methyl-2-alkynoates and methyl-2,3-alkadienoates

Massoud Hojjatie, Subramaniam Muralidharan and Henry Freiser 1611 Synthesis and multinuclear NMR characterizations of some [3.3]diselena- and [4.4]tetraselenacyclophanes

Christopher M. Hadad, James R. Damewood, Jr. and Joel F. Liebman 1623 Interrelationships among heats of formation and molecular mechanics steric energies

Jongheon Shin, Minkyu Park and William Fenical 1633 The junceellolides, new anti-inflammatory diterpenoids of the briarane class from the Chinese gorgonian *Junceella fragilis*

Kenji Mori and Hideo Takaishi 1639 Synthesis of monocerin, an antifungal, insecticidal and phytotoxic heptaketide metabolite of *Exserohilum monoceras*

Nobuhiro Fusetani, Minao Asano, Shigeki Matsunaga and Kanehisa Hashimoto 1647 Acalycixeniolides, novel norditerpenes with allene functionality from two gorgonians of the genus *Acalycigorgia*

Masami Kawase, Yuko Miyake, Takeshi Sakamoto, Masahiro Shimada and Yasuo Kikugawa 1653 Total synthesis of eupolauramine

Dietmar Janietz and Wolf-Dieter Rudorf 1661 [1]Benzopyrano[4,3-*c*]pyrazoles by intramolecular nitrile imine addition to acetylenes

Hans Jochen Kuhn, Rosalie Defoin, Klaus Gollnick, Carl Krüger, Yi-Hung Tsay, Ling-Kang Liu and Peter Betz 1667 Sensitized photocyclodimerization of α,β-unsaturated cyclic sulfones. Crystal structural analyses of the photodimers of 2-sulfolene and thia-2-cyclohexene-1,1-dioxide

Th. Oberhauser, K. Faber and H. Griengl 1679 A substrate model for the enzymatic resolution of esters of bicyclic alcohols by *Candida cylindracea* lipase

Manfred Psiorz und Rolf Schmid 1683 Cyclophane—II. *ortho*-Dialkylierte [2.2]Paracyclophane

Klaus-Dieter Ginzel, Peter Brungs and Eberhard Steckhan 1691 Indirect electrochemical α-methoxylation of *N*-acyl and *N*-carboalkoxy α-amino acid esters and application as cationic glycine equivalents

Ulrich Werner, Hans-Wolfgang Hoppe, Peter Welzel, Günther Snatzke and **Roland Boese**	1703	An approach to bufadienolides from deoxycholic acid. UV, CD and X-ray data of some 22,23-dihydrobufadienolides
Louis Hamon, Jacques Levisalles et **Yves Louis Pascal**	1711	Etude théorique de la pyrolyse des esters—I. Calculs MNDO, AM1 et *ab initio* des processus d'élimination et de réarrangement pour le formiate d'éthyle
Ronald Grigg, Gregory Donegan, H. Q. Nimal Gunaratne, Deirdre A. Kennedy, John F. Malone, Visuvanathar Sridharan and **Sunit Thianpatanagul**	1723	X=Y—ZH systems as potential 1,3-dipoles—XXI. Activation of the ZH proton in imines
Hamad A. Al-Lohedan	1747	Nucleophilicity of halide ions in the micellar pseudophase
Boris Šket and **Marko Zupan**	1755	Regiospecific 2+2 photoaddition of phenyl substituted acetylenes to pentafluoropyridine
Albert Langendoen, Johannes P. M. Plug, Gerrit-Jan Koomen and **Upendra K. Pandit**	1759	Regiospecific C-9 substitution of ellipticine derivatives
S. A. Glover and **A. P. Scott**	1763	MNDO properties of heteroatom and phenyl substituted nitrenium ions
G. V. T. Swapna, A. B. Lakshmi, Jampani Madhusudana Rao and **A. C. Kunwar**	1777	Mechanistic implications of photoannelation reaction of 4,4-dimethyl-cyclohex-2-ene-1-one and acrylonitrile—regio- and stereochemistry of the major photoadduct by ^1H and ^{13}C NMR spectroscopy
Vicente Gotor, Rosario Brieva, M. Concepción Foces-Foces and **Félix H. Cano**	1783	Synthesis and rearrangement of 5-isothiocyanatopyrazolines
Géza Szilágyi, Pál Sohár, József Langó and **Gábor Zólyomi**	1793	Cyclizations of 1-methyl-1-(3-pyridazinyl)hydrazones
Ruth B. Katz, Michael B. Mitchell, Peter G. Sammes and **Robert J. Ife**	1801	A synthesis of some pyridinylpyrimidines from ketenedithioacetals
Arturo San Feliciano, Manuel Medarde, Fernando Tomé, Esther Caballero, Belén Hebrero, Jose M. Miguel del Corral and **Alejandro F. Barrero**	1815	Selective and stereocontrolled hydroboration of 13-*epi*-pimaradiene diterpenoids
P. Molina, M. Alajarín, C. López-Leonardo, I. Madrid, C. Foces-Foces and **F. H. Cano**	1823	Iminophosphorane-mediated annelation of an imidazole ring into a benzimidazole ring: synthesis of imidazo[1,5-*a*]benzimidazole derivatives. Crystal structure of 1-(4-methoxyphenylimino)-2-(4-methoxyphenylcarbamoyl)-2,3-dihydro-1*H*-imidazo[1,5-*a*]benzimidazole
Rosa Batllori, Josep Font, Montserrat Monsalvatje, Rosa M. Ortuño and **Francisco Sanchez-Ferrando**	1833	Diels–Alder cycloadditions of chiral butenolides with cyclopentadiene: endo/exo selectivity
Virender S. Parmar, Suddham Singh, Anand Vardhan and **Rita Sharma**	1839	Synthesis of some new phenyl 2H-1-benzopyran-2-ones: novel structure for nivegin

S. Jayaraman, S. Thambidurai, J. Srinivasan, R. Rathinasabapathy and K. Rajagopalan — 1845 — An unexpected ring cleavage during ketalization

Upender K. Nadir, Raman L. Sharma and Veerinder K. Koul — 1851 — Reaction of dimethyloxosulfonium methylide with N-arylsulfonylaziridines—stereospecific conversion of N-arylsulfonylaziridines to N-arylsulfonylazetidines

I — Tetrahedron Reports on Organic Chemistry

XV — Instructions to Contributors

NUMBER 7

i — Contributors to this issue

TETRAHEDRON REPORT NUMBER 250

Donald S. Matteson — 1859 — Boronic esters in stereodirected synthesis

S. William Pelletier, Samir A. Ross and Palaniappan Kulanthaivel — 1887 — New alkaloids from *Delphinium elatum* L.

Russell G. Kerr, Ivan L. Stoilov, Janice E. Thompson and Carl Djerassi — 1893 — Biosynthetic studies of marine lipids—XVI. *De novo* sterol biosynthesis in sponges. Incorporation and transformation of cycloartenol and lanosterol into unconventional sterols of marine and freshwater sponges

Norris E. Allen, Donald B. Boyd, Jack B. Campbell, Jack B. Deeter, Thomas K. Elzey, Bennie J. Foster, Lowell D. Hatfield, Joseph N. Hobbs, Jr., William J. Hornback, David C. Hunden, Noel D. Jones, Michael D. Kinnick, John M. Morin, Jr., John E. Munroe, John K. Swartzendruber and David G. Vogt — 1905 — Molecular modeling of γ-lactam analogues of β-lactam antibacterial agents: synthesis and biological evaluation of selected penem and carbapenem analogues

Haruo Saso, Wataru Ando and Katsuhiko Ueno — 1929 — Novel Si—C bond cleavages of alkylidenesiliranes in the reaction with nucleophiles

Tohru Hino, Tomohiko Kawate and Masako Nakagawa — 1941 — A synthesis of so-called fumitremorgin C

Kenji Mori and Tetsuyuki Uno — 1945 — Synthesis and structure revision of bifurcarenone, a unique monocyclic diterpene in combination with a hydroquinone C_5 unit as an inhibitor of mitotic cell division

Robert J. P. Corriu, Gérard F. Lanneau and Dominique Leclercq — 1959 — Silicon-phosphorus analogies. Nucleophilic catalysis in the alcoholysis of chlorophosphorus derivatives

C. Roumestand, B. Perly, D. Hosford and P. Braquet — 1975 — Proton and carbon-13 NMR of ginkgolides

Goverdhan Mehta, Patrick Azario, René Barone and Michel Chanon — 1985 — How to search original key steps in a synthesis of complex structures by using a microcomputer as a chemical pocket-like calculator

Marie-Lise Kondracki and Michèle Guyot — 1995 — Biologically active quinone and hydroquinone sesquiterpenoids from the sponge *Smenospongia* sp.

A. Krief, W. Dumont, M. Clarembeau, G. Bernard and **E. Badaoui**	2005	Synthesis of α-selenoalkyllithium compounds
A. Krief, W. Dumont, M. Clarembeau and **E. Badaoui**	2023	Comparison between alkylseleno, arylseleno and arylthio substituents stabilizing alkyllithium compounds
D. Pflieger and **B. Muckensturm**	2031	Cyclisation of 6-hydroxy-2-ynals and ynoates: a new pathway to substituted 2-methylene-tetrahydrofurans
Kafui Kpegba, Patrick Metzner et **Rosé Rakotonirina**	2041	Stéréospécificité de l'addition de Michael d'ènethiolates avec les énones acycliques
I. Tranchepain, F. Le Berre, A. Duréault, Y. Le Merrer and **J. C. Depezay**	2057	Total enantiospecific syntheses of 13(S)-hydroxy 9*Z*, 11*E*-octadecadienoic (coriolic) acid and 13(S)-N-tosylamino analogue
René Baudouy et **Philippe Prince**	2067	Synthèse stéréosélective d'une composante de la phéromone sexuelle de l'écaille rouge de Californie: l'acétate d'isopropényl-6 méthyl-3 décadiène-3,9yle(3*Z*,6*R*)
E. Epifani, S. Florio, G. Ingrosso and **F. Babudri**	2075	Regioselective allylation and propargylation of pyrimidines
Fernando Bernardi, Andrea Bottoni, Alessandro Venturini, Camillo Tosi and **Roberto Santi**	2083	An *ab-initio* study of the electronic structure and conformational preferences of malonyl radical
F. Felluga, P. Nitti, G. Pitacco and **E. Valentin**	2099	Highly diastereoselective synthesis of cyclic nitronic esters from 1-(4-morpholinyl)-1-phenylpropene with nitroolefins
Ch. Sanjeeva Reddy and **E. V. Sundaram**	2109	Mechanism of acid bromate oxidation of *trans* mono-substituted cinnamic acids: structure reactivity correlation—a non-linear Hammett's plot
D. McHale, W. A. Laurie, K. Saag and **J. B. Sheridan**	2127	Photoreactions of quinine in aqueous citric acid solution—III. Products formed in aqueous 2-hydroxy-2-methylpropionic acid
Jan Vader, Hubert Sengers and **Aede de Groot**	2131	The stereoselective syntheses of substituted furo[2,3*b*]furans—II
Steven V. Ley, Antonio Abad Somovilla, Howard B. Broughton, Donald Craig, Alexandra M. Z. Slawin, Peter L. Toogood and **David J. Williams**	2143	Chemistry of insect antifeedants from *Azadirachta indica*—IV. Synthesis towards the limonoid azadirachtin; preparation of a functionalised decalin fragment
Subhash C. Sinha, Sujata Kundu, Rakesh Maurya, Anil B. Ray, Yoshiteru Oshima, Anjana Bagchi and **Hiroshi Hikino**	2165	Structures of withametelin and isowithametelin, withanolides of *Datura metel* leaves
Mario Almi, Arturo Arduini, Alessandro Casnati, Andrea Pochini and **Rocco Ungaro**	2177	Chloromethylation of calixarenes and synthesis of new water soluble macrocyclic hosts
José Barluenga, Francisco Foubelo, Francisco J. Fañanás and **Miguel Yus**	2183	*N*-Lithio-*N*-(2-lithioethyl)- and *N*-lithio-*N*-(3-lithiopropyl)benzamide: direct preparation and synthetic applications of 2-lithioethyl- and 3-lithiopropyl-amine equivalents
Shmuel Carmely, Micha Ilan and **Yoel Kashman**	2193	2-Amino imidazole alkaloids from the marine sponge *Leucetta chagosensis*

Chiara Antonini Vitali and **Bernardo Masci**	2201	Template effects—VII. Large unsubstituted crown ethers from polyethylene glycols: formation, analysis, and purification
Chiara Antonini Vitali and **Bernardo Masci**	2213	Template effects—VIII. The template effect of two alkali metal ions in the formation of crown ethers
Grazyna Groszek, Alicja Kurek-Tyrlik and **Jerzy Wicha**	2223	Synthesis of a cardenolide, 3-O-methyl uzarigenin, with 14β-hydroxyandrost-16-ene as the key intermediate

NUMBER 8

TETRAHEDRON SYMPOSIA-IN-PRINT NUMBER 37

MYCOTOXINS

Guest Editor: PIETER S. STEYN
CSIR, Pretoria 0001, South Africa

	i	Contributors to this issue
	vii	Announcement: *Tetrahedron* Symposia-in-Print
	xi	Preface
Michael R. A. Morgan	2237	Mycotoxin immunoassays (with special reference to ELISAs)
Ronald D. Plattner, Marian N. Beremand and **Richard G. Powell**	2251	Analysis of trichothecene mycotoxins by mass spectrometry and tandem mass spectrometry
Craig A. Townsend, Yasuo Isomura, Steven G. Davis and **Julia A. Hodge**	2263	Reaction models of the oxidative rearrangement of averufin to 1′-hydroxyversicolorone: the first step in dihydrobisfuran formation in aflatoxin biosynthesis
Lolita O. Zamir	2277	Biosynthesis of 3-acetyldeoxynivalenol and sambucinol
C. Rupert McIntyre, Fiona E. Scott, Thomas J. Simpson, Laird A. Trimble and **John C. Vederas**	2307	Application of stable isotope labelling methodology to the biosynthesis of the mycotoxin, terretonin, by *Aspergillus terreus:* incorporation of ^{13}C-labelled acetates and methionine, ^{2}H- and ^{13}C, ^{18}O-labelled ethyl 3,5-dimethylorsellinate and oxygen-18 gas
Yoshihiko Izawa, Takashi Hirose, Takako Shimizu, Kiyotaka Koyama and **Shinsaku Natori**	2323	Six new 10-phenyl-[11]cytochalasans, cytochalasins N – S from *Phomopsis* sp.
Maria Potgieter, Pieter S. Steyn, Fanie R. van Heerden, Petrus H. van Rooyen and **Phillipus L. Wessels**	2337	Conformational analysis of the cyclic peptide rhizonin A in solution and crystalline state
Claude C. J. Culvenor, John A. Edgar, Maureen F. Mackay, Charles P. Gorst-Allman, Walter F. O. Marasas, Pieter S. Steyn, Robert Vleggaar and **Philippus L. Wessels**	2351	Structure elucidation and absolute configuration of phomopsin A, a hexapeptide mycotoxin produced by *Phomopsis leptostromiformis*
R. Greenhalgh, B. A. Blackwell and **M. E. Savard**	2373	The NMR spectra of trichothecenes and related fungal metabolites
Christoph Tamm and **Nicolas Jeker**	2385	Synthesis of macrocyclic trichothecene mycotoxins

Andrew P. Craven, Hazel J. Dyke and Eric J. Thomas	2417	Cytochalasan synthesis: synthesis of (17*S*, 18*S*)-17,18-dihydroxy-10-(prop-2-yl)-14-methyl-[11]cytochalasa-6(7),13^{Z},19^{E}-triene-1, 21-dione; an isomer of aspochalasin C
Amos B. Smith, III, John N. Haseltine and Melean Visnick	2431	Tremorgenic indole alkaloid studies—VI. Preparation of an advanced intermediate for the synthesis of penitrem D. Synthesis of an indole-oxpcane
Thomas J. Simpson and Alan D. Pemberton	2451	High field ^{1}H NMR studies on the ammoniation of aflatoxin B_1

NUMBER 9

	i	Contributors to this issue

TETRAHEDRON REPORT NUMBER 251

L. Woźniak and J. Chojnowski	2465	Silyl esters of phosphorus—common intermediates in synthesis
P. Canonne, R. Boulanger and M. Bernatchez	2525	Diastereoselective reactions of 1,4-bis(bromomagnesio)pentane with lactones and cyclic anhydrides
David B. Repke, Jahangir, Robin D. Clark, Janis T. Nelson and David B. MacLean	2541	Synthesis of naucléfine, angustidine, angustine, (±)-13*b*,14-dihydroangustine and naulafine
Hideo Kigoshi, Akihiko Sawada, Yoshifumi Imamura, Haruki Niwa and Kiyoyuki Yamada	2551	Ptaquilosin, the aglycone of a bracken carcinogen ptaquiloside: chemical derivation from ptaquiloside and the reactivity
Kinji Ohashi, Shunji Kosai, Mitsuo Arizuka, Takashi Watanabe, Yoshiro Yamagiwa, Tadao Kamikawa and Morris Kates	2557	Syntheses of D-*erythro*-1-deoxydihydroceramide-1-sulfonic acid and phosphonosphingoglycolipid found in marine organisms via a common precursor
Helmut Stamm, Pen-Yuan Lin, Andreas Sommer and Anton Woderer	2571	Arene hydrides—VII. Reactions of anthracene hydride with styrene and stilbene oxide. Reduction in benzylic position via nucleophilic substitution
G. Dupas, A. Decormeille, J. Bourguignon and G. Quéguiner	2579	Optimization of the reaction conditions using a NADH model grafted on a Merrifield type resin
Bernard Riss et Bernard Muckensturm	2591	Synthèse totale de la (±) bisabolangélone
Evelyne Delfourne, Jacqueline Véronique, Liliane Gorrichon, Aurélio Munoz et Lydia Lamandé	2605	Borates cycliques préparés à partir des acides shikimique et quinique et de leurs esters méthyliques—structure et stabilité en solution dans l'eau
Derek H. R. Barton, Dominique Bridon and Samir Z. Zard	2615	The invention of radical reactions—XVIII. Decarboxylative radical addition to arsenic, antimony and bismuth phenylsulphides—a novel synthesis of nor-alcohols from carboxylic acids
J.-P. Gesson, J.-C. Jacquesy and M. Mondon	2627	Enantiodivergent synthesis of (+) and (–) altholactone from D-glucose. Preparation and cytotoxic activity of analogs
Guita Etemad-Moghadam, Li Ding, Fatemeh Tadj and Bernard Meunier	2641	Synthesis of hybrid 'metalloporphyrin-ellipticine' molecules
Manfred Schlosser and Sven Strunk	2649	The Wittig rearrangement as a practical method for aldehyde synthesis

Luca Baumer, Giordano Sala and **Guido Sello**	2665	Organic synthesis planning: an algorithm for selecting strategic bond forming sequences
S. N. Black, L. J. Williams, R. J. Davey, F. Moffatt, R. V. H. Jones, D. M. McEwan and **D. E. Sadler**	2677	The preparation of enantiomers of paclobutrazol: a crystal chemistry approach
Tarja Tamminen, Reija Jokela, Birgit Tirkkonen and **Mauri Lounasmaa**	2683	Indoloquinolizidine iminium species formed under the modified Polonovski reaction conditions
Antonius T. M. Marcelis and **Henk C. van der Plas**	2693	Inverse electron demand Diels-Alder reactions of 5-nitropyrimidine with enamines. Synthesis of 3-nitropyridine derivatives
I. Fernandez, J. M. Llera, F. Zorrilla and **F. Alcudia**	2703	The fixing role of the *tert*-butyl group in the conformational properties of acyclic sulphur compounds. Synthesis and conformational analysis of 2-*tert*-butylthioderivatives of 1-phenylethanol and their O-methyl analogs
Bernardo Masci	2719	The selectivity of electrophilic aromatic nitration and the effect of the organic solvents
János Szabó, Erzsébet Szűcs, Lajos Fodor, Gábor Bernáth and **Pál Sohár**	2731	Synthesis of 1,2-benzisothiazoles by the oxidative ring contraction of 2-aryl- and 4-aryl-3,4-dihydro-2*H*-1,3-benzothiazines
Stojan Stavber and **Marko Zupan**	2737	Fluorination with caesium fluoroxysulphate—XI. Mild functionalization of saturated hydrocarbons
Goverdhan Mehta, Kasibhatla Srinivas Rao, Nacharaju Krishnamurthy, V. Srinivas and **D. Balasubramanian**	2743	Synthesis and cation-binding abilities of novel polyquinane crown ethers containing a bis-acetal ether functionality
Benito Alcaide, Ana Gómez, Joaquín Plumet and **Julián Rodríguez-López**	2751	Synthesis of novel functionalized monocyclic 2-azetidinones from *N,N'*-diaryl-α-diimines and lithium ester enolates
Silvio Massa, Antonello Mai, Marino Artico, Federico Corelli and **Maurizio Botta**	2763	Syntheses of 3*b*,4,6,7-tetrahydro-5H,9H-pyrazino[2,1-*c*]pyrrolo-[1,2-*a*][1,4]benzodiazepine, a valuable precursor of potential central nervous system agents
Ben J. M. Jansen, Gert C. Schepers and **Aede de Groot**	2773	The stereoselective synthesis of (±)-9βH-pimara-7,19-diene
J. Katzhendler, S. Cohen, E. Rahamim, M. Weisz, I. Ringel and **J. Deutsch**	2777	The effect of spacer, linkage and solid support on the synthesis of oligonucleotides
Pál Herczegh, Martina Zsély, László Szilágyi, Gyula Batta, István Bajza and **Rezső Bognár**	2793	Intramolecular reactions of compounds derived from sugars—II. Stereocontrolled intramolecular Diels-Alder cyclizations of 1,6(*E,Z*),8-nonatrienes and 1-aza-6(*E,Z*),8-nonatrienes
Michael K. Manthey, Stephen G. Pyne and **Roger J. W. Truscott**	2803	The autoxidation of 3-hydroxyanthranilic acid in the presence of amino acids
Maurizio Botta, Francesco De Angelis, Lorenzo de Ferra, Augusto Gambacorta, Rosario Nicoletti, Antonio Palleschi, Clara Marciante and **Giorgio Pochetti**	2811	Studies related to cephalosporins—VI. Bromination of 3-exomethylene in cepham derivatives

Yehiel Gaoni	2819	New bridgehead-substituted 1-(arylsulfonyl)bicyclo[1.1.0]butanes and some novel addition reactions of the bicyclic system
Jack E. Baldwin, Robert M. Adlington and **Neil Moss**	2841	Synthetic approaches to 2-methoxycysteine containing peptides. The conversion of [(5*S*)-5-amino-5-carboxy-2-oxapentanoyl]-2-methoxy-(2*S*)-cysteinyl-(2*R*)-valine into 10-oxa-6α-methoxyisopenicillin N by the enzyme isopenicillin N synthase
M. Tiecco, M. Tingoli, L. Testaferri, D. Bartoli and **D. Chianelli**	2857	Synthesis of bis(alkylthio)bipyridyls by nickel mediated homo coupling of halogenopyridyl alkyl sulphides
Mara Cornia and **Giovanni Casiraghi**	2869	Stereoselective arylations using metal phenolates. Complementary synthesis of 5-*C*-arylxylofuranose derivatives of either L-*ido* or D-*gluco* configuration

NUMBER 10

TETRAHEDRON SYMPOSIA-IN-PRINT NUMBER 38

STRAIN-ASSISTED SYNTHESES

Guest Editor: LEON GHOSEZ

Université Catholique de Louvain, Louvain-La-Neuve, Belgium

	i	Contributors to this issue
	vii	Announcement: *Tetrahedron* Symposia-in-Print
	xi	Preface
Robert S. Atkinson, Michael J. Grimshire and **Brian J. Kelly**	2875	Aziridination by oxidative addition of *N*-aminoquinazolones to alkenes: evidence for non-involvement of *N*-nitrenes
Paul Binger, Andreas Freund and **Petra Wedemann**	2887	5-Alkylidene-hexahydro-1*H*-cyclopenta[*c*]pyrrol-1,3-diones by nickel(0) or palladium(0) catalyzed [3+2] cycloaddition of methylenecyclopropanes with maleimides
Carlo Bonini, Romano Di Fabio, Giovanni Sotgiu and **Silvia Cavagnero**	2895	Oxirane rings: studies and applications of a new chemo and regio selective reductive opening of epoxides
Manfred Christl, Erich Brunn, Wolfgang R. Roth and **Hans-Werner Lennartz**	2905	7-Methyl- and 7-phenylcyclohepta-1,3,5-trienes from benzvalene via 3,3*a*,4,5,6,6*a*-hexahydro-4,5,6-methenocyclopentapyrazoles and tetracyclo[4.1.0.0^{2,4}.0^{3,5}] heptanes
Theodore Cohen and **Linda Brockunier**	2917	Efficient synthesis of 2-vinylcyclobutanones by the rearrangement of 1-methoxy-1-cyclopropylcarbinols under neutral conditions
Eckehard V. Dehmlow and **Andreas Winterfeldt**	2925	Chlorofluorocarbene addition to alkynes: a novel path to cyclopropenones with uncommon substituents (cyclopropenone chemistry—XI)
Paul Sulmon, Norbert De Kimpe and **Niceas Schamp**	2937	A new method for the preparation of β-(alkylamino)-carbonyl compounds by rearrangement of β-chloroimines via azetidine intermediates
Armin de Meijere, Stefan Teichmann, Dahai Yu, Jürgen Kopf, Mathias Oly and **Norbert von Thienen**	2957	2-Chloro-2-cyclopropylidenacetate in synthesis—II. Facile construction of various spirocyclopropane anellated heterocycles

Ken S. Feldman and **Thorsten E. Fisher**	2969	Tetrahydrofuran synthesis via free radical mediated addition of functionalized alkenes to aryl vinyl oxiranes
Gary A. Fenton and **Andrew Gilbert**	2979	Tricyclo[3.3.0.$0^{2,8}$]oct-3-enes: their acid cleavage reactions and cycloadditions with dienophiles
Jean-Pierre Deprés, Brigitte Navarro and **Andrew E. Greene**	2989	A new two-carbon olefin homologation procedure that leads to α-chloroenones. An efficient synthesis of D,L-muscone
Mostafa Sahebi, Peter Wipf and **Heinz Heimgartner**	2999	3-Amino-2H-azirines in the synthesis of peptides:tetrapeptides with α,α-disubstituted α-amino acids
Chen Chen, Yi Liao and **Yao-Zeng Huang**	3011	Tributylstibine mediated synthesis of 1,1,2-tri-substituted cyclopropanes
T. Hudlicky, A. Fleming and **T. C. Lovelace**	3021	[2+3] Dihydrofuran annulation via vinyloxiranation of carbonyl compounds
A. Krief, W. Dumont, P. Pasau and **Ph. Lecomte**	3039	Stereoselective synthesis of methyl (1R) *trans*- and (1R) *cis*-hemicaronaldehydes from natural tartaric acid: application to the synthesis of S-bioallethrin and deltamethrin insecticides
Lanny S. Liebeskind	3053	Cyclobutenediones as precursors to quinones and cyclopentenones
Angela Marinetti and **François Mathey**	3061	Opening of phosphirane-tungsten-complexes by nucleophiles
Teodozyj Kolasa and **Marvin J. Miller**	3071	Syntheses of functionalized β-lactams from tartaric acid
Shigeru Yamago and **Eiichi Nakamura**	3081	Synthesis of propellanes by 'exocyclic' transannular cycloaddition of olefinic methylenecyclopropanes
Keigo Fugami, Katsukiyo Miura, Yoshitomi Morizawa, Koichiro Oshima, Kiitiro Utimoto and **Hitosi Nozaki**	3089	Transformation of N-tosyl-2-(1,3-butadienyl)aziridine into N-tosyl-2-ethenyl-3-pyrroline
Leo A. Paquette, Choon Sup Ra and **Thomas W. Silvestri**	3099	Free radical cyclization approach to a functionalized [3]peristylane
Brindaban C. Ranu, Dipak C. Sarkar and **Manas K. Basu**	3107	A simple and efficient route towards usefully functionalised six and seven-membered ring systems via α-hydroxycyclobutane rearrangement followed by retroaldol cleavage
Udo Hees, Uwe-Josef Vogelbacher, Gisbert Michels and **Manfred Regitz**	3115	Antiaromatic compounds—XXIV. Steric effects on valence isomerizations in the Dewar pyridine/azaprismane/pyridine system
W. Verboom, P. J. S. S. van Eijk, P. G. M. Conti and **D. N. Reinhoudt**	3131	2-(1-Alkenyl)- and 2-aryl-substituted four-membered cyclic nitrones as precursors for 2,3,4-substituted pyridines and quinolines
Hans-Ulrich Reissig, Hiltrud Holzinger and **Gabriele Glomsda**	3139	A titanoxycyclopropane as intermediate in a highly stereoselective homoaldol type addition: syntheses of *cis*-substituted tetrahydrofuran derivatives
J. Salaun, B. Karkour and **J. Ollivier**	3151	Optically active 2-vinylcyclobutanones
Ernst Schaumann, Carsten Friese and **Gunadi Adiwidjaja**	3163	(2+1) Cycloaddition of chloro(phenylthio)carbene to vinyl silanes. A facile synthesis of highly functionalized cyclopropanes

Barry B. Snider and **Marleen Walner**	3171	Preparation of unsaturated α, α-dichloro acid chlorides and intramolecular [2+2] cycloadditions of the α-chloroketenes reductively generated from them. Effect of double bond geometry on the cycloaddition
Jean-Luc Vaerman and **Heinz G. Viehe**	3183	Stereocontrolled epoxy-epimination of 1,3-cyclohexadiene
Peter Altmeier, Elmar Vilsmaier and **Gotthelf Wolmershäuser**	3189	Functionalized chloroenamines in aminocyclopropane synthesis—I. Bicyclic and pentacyclic lactams from carbamoylated chloroenamines
Harry H. Wasserman, Robert P. Dion and **James Fukuyama**	3203	Cyclopropanone equivalents from 3-chloropropionic acid. Use of 1-piperidino-1-trimethylsilyloxycyclopropane in synthetic applications
Zen-ichi Yoshida, Hideo Hirai, Sadao Miki and **Shigeo Yoneda**	3217	Trithiocyclopropenium ion as a building block for nitrogen heterocycle synthesis

NUMBER 11

	i	Contributors to this issue
		TETRAHEDRON REPORT NUMBER 252
Kenji Mori	3233	Synthesis of optically active pheromones
Alexander McKillop and **Duncan Kemp**	3299	Further functional group oxidations using sodium perborate
Diana M. Kushlan, D. John Faulkner, Laszlo Parkanyi and **Jon Clardy**	3307	Metabolites of the Palauan sponge *Dactylospongia* sp.
Miguel E. Alonso and **Raiza Fernández**	3313	Effect of catalyst on zwitterionic intermediacy in additions of dimethyl diazomalonate to vinyl ethers
Soo-Dong Yoh, Kyung-Hwan Park, Sung-Hong Kim and **Duk-Young Cheong**	3321	Kinetic studies for the reactions of phenacyl *p*-bromobenzenesulfonate with substituted pyridines under high pressures
Radoslav Vlahov, Dikran Krikorian, Grigor Spassov, Maja Chinova, Joncho Vlahov, Stojan Parushev, Günther Snatzke, Ludger Ernst, Klaus Kieslich, Wolf-Rainer Abraham and **William S. Sheldrick**	3329	Synthesis of galanthamine and related alkaloids—new approaches—I
Janusz Baran and **Herbert Mayr**	3347	Acceleration of Diels-Alder reactions by remote methyl groups
Boujemâa Daou et **Mohamed Soufiaoui**	3351	Nouvelle voie de synthèse d'arylpyrazolo-[4,3-*c*]-quinoléines via la cycloaddition dipolaire-1,3
Sylvain Brunel, Yves Chevalier and **Pierre Le Perchec**	3363	Synthesis of new zwitterionic surfactants with improved solubility in water
Gilbert Dana, Estera Touboul et **Odile Convert**	3371	Analyse conformationnelle en série tétrahydrofurannique. Etude par RMN de l'inversion de cycle accompagnant la réaction d'anomérisation des dihalo-2,3 aryl-5 tétrahydrofurannes
J. Loccufier and **E. Schacht**	3385	Regioselective acylation of 3,8-diamino-5-ethyl-6-phenylphenantridium bromide. Preparation of potential new trypanocides
Catherine Pale-Grosdemange et **Josselin Chuche**	3397	Synthèse de pyrroles et d'oxazoles par pyrolyse de N-(hydroxy-2' ethyl) amino-3 propénoate

Hélène Pellissier et **Gérard Gil**	3415	Réaction des isonitriles—IV. Synthèse de γ-alkoxy α-hydroxy-amides par double condensation d'énoxysilane et du *tert*-butyl-isonitrile aux acétals
Robert Nouguier et **Jean-Louis Gras**	3423	Réaction de transacétalisation par le diméthoxyméthane synthèse de O-méthylèneacétal de dérivés du D(+)glucose
C. Gault and **C. Moinet**	3429	Reaction of electrogenerated 2-nitrosobenzoic acids with sulphinic acids. A convenient route to N-sulfonylbenzisoxazolones
C. Dupuy and **J. L. Luche**	3437	New developments of the Wharton transposition
Carole Moquin-Pattey and **Michèle Guyot**	3445	Grossularine-1 and grossularine-2, cytotoxic α-carbolines from the tunicate: *Dendrodoa grossularia*
Andrew Pelter, Robert S. Ward, Reveru Venkateswarlu and **C. Kamakshi**	3451	Reaction of gmelinol with triethylsilane and BF_3-etherate—rearrangement of the 2,6-diaryl-3,7-dioxabicyclo[3.3.0]octane skeleton
Steven V. Ley and **Francine Sternfeld**	3463	Microbial oxidation in synthesis: preparation of (+)- and (–)-pinitol from benzene
C. J. J. Elie, C. E. Dreef, R. Verduyn, G. A. Van Der Marel and **J. H. Van Boom**	3477	Synthesis of 1-*O*-(1,2-di-*O*-palmitoyl-*SN*-glycero-3-phosphoryl)-2-*O*-α-D-mannopyranosyl-D-*myo*-inositol: a fragment of mycobacterial phospholipids
S. A. Fedoreyev, S. G. Ilyin, N. K. Utkina, O. B. Maximov, M. V. Reshetnyak, M. Yu. Antipin and **Yu. T. Struchkov**	3487	The structure of dibromoagelaspongin—a novel bromine-containing guanidine derivative from the marine sponge *Agelas* sp.
György Orosz	3493	The role of diaryl oxalates in peroxioxalate chemiluminescence
Atta-ur-Rahman, Talat Fatima and **Sajida Khanum**	3507	Rhazizine: a novel alkaloid from the leaves of *Rhazya stricta*
Melinda Gál, István Pallagi, Pál Sohár, Vilmos Fülöp and **Alajos Kálmán**	3513	Synthesis and isomerization of the 3,4,12,12*a*-tetrahydro-2,6*H*-[1,3]oxazino[2,3-*b*][1,3,4]benzotriazepin-7-one ring system
Rut Ideses and **Arnon Shani**	3523	The Wittig reaction: comments on the mechanism and application as a tool in the synthesis of conjugated dienes
Alfred Hassner and **Bilha Fischer**	3535	Do oxazoles undergo Diels-Alder reactions with heterodienophiles?
Bimal K. Banik and **Usha Ranjan Ghatak**	3547	Synthetic studies towards complex diterpenoids—XVII. Synthesis and oxidative cleavage of (±)-19,20-cycloabieta-19-oxo-8,11,13-triene
Ronald Grigg, Visuvanathar Sridharan, Paul Stevenson and **Sukanthini Sukirthalingam**	3557	The synthesis of spirocyclic compounds by regiospecific palladium catalysed cyclisation reactions
Parijat Sarmah and **Nabin C. Barua**	3569	Regioselective transformation of allylic, benzylic and tertiary alcohols into the corresponding iodides with aluminium triiodide: deoxygenation of vicinal diols
M. S. Gonzalez, J. M. San Segundo, M. C. Grande, M. Medarde and **I. S. Bellido**	3575	Sesterterpene lactones from *Salvia aethiopis*. Salviaethiopisolide and 13-*epi*-salviaethiopisolide
Giovanni Palmisano, Bruno Danieli, Giordano Lesma and **Daniele Passarella**	3583	Synthetic studies on indole alkaloids. A stereocontrolled entry to the cuanzine structural unit

Mohamed H. Elnagdi, Fathy M. Abdelrazek, Nadia S. Ibrahim and **Ayman W. Erian** 3597 Studies on alkylheteroaromatic compounds. The reactivity of alkyl polyfunctionally substituted azines towards electrophilic reagents

Cristina Vicent, Manuel Martin-Lomas and **Soledad Penadés** 3605 New synthetic strategy to highly symmetric chiral macrocycles from carbohydrate derivatives

I Instructions to Contributors

NUMBER 12

i Contributors to this issue

iii Yuri Ovchinnikov (1934-1988): Obituary

vii Graphical Abstracts

TETRAHEDRON REPORT NUMBER 253

David W. Boykin and **Alfons L. Baumstark** 3613 ^{17}O NMR Spectroscopy: assessment of steric perturbation of structure in organic compounds

Vasu Nair and **Arthur G. Lyons** 3653 Novel unsaturated purine nucleosides

S. Hoz and **E. Buncel** 3663 An AM1 study of an α-nucleophile: geometries and interconversion modes of oximate anion stereomers

Katsuya Endo, Kazuhiko Seya and **Hiroshi Hikino** 3673 Biogenesis-like transformation of salidroside to rengyol and its related cyclohexyletanoids of *Forsythia suspensa*

Elmar Vilsmaier, Rainer Adam, Claus Tetzlaff and **Regina Cronauer** 3683 Functionalized chloroenamines in aminocyclopropane synthesis—III. Synthesis and assignment of configuration of two isomeric morpholinobicyclo[3.1.0]hexane derivatives

Hans-Wolfgang Hoppe, Blanda Stammen, Ulrich Werner, Hermann Stein and **Peter Welzel** 3695 An approach to bufadienolides from deoxycholic acid. Reactions of a steroidal α,β-unsaturated aldehyde with some O-silylated ketene acetals

Walter V. Turner and **Siegmar Gäb** 3711 Another look at the photodechlorination of Bromodan

S. B. Adéoti, B. Charpentier, A. Montagnac, A. Chiaroni, C. Riche et **M. Païs** 3717 Introduction d'une fonction azotée en 14β du noyau stéroide. Application à la préparation d'une molécule cardioactive, le 14β-amino-5β-prégnane-3β,20β-diol, à partir de la progestérone et de l'acide désoxycholique

Robert Bloch and **Matar Seck** 3731 Optically active five-membered oxygen-containing rings. A synthesis of (+)-eldanolide

Derek H. R. Barton, Jocelyne Wozniak and **Samir Z. Zard** 3741 A short and efficient degradation of the bile acid side chain. Some novel reactions of sulphines and α-ketoesters

Mostafa El Idrissi and **Maurice Santelli** 3755 Cyclization of 1,5-hexadien-3-ols. Obtention of chloro-octalines, octalones and hexahydro-azulenones from allyl-pulegols

V. Lamare, A. Archelas, R. Faure, M. Cesario, C. Pascard and **R. Furstoss** 3761 Microbial transformations—XIV. Regioselective hydroxylation of (1*R*)-caryolanol by *Aspergillus niger*. A reexamination of the ^{13}C NMR spectrum of caryolanol

G. Ariamala and **K. K. Balasubramanian** 3769 Photochemical behaviour of 3,4-epoxyprecocene-I and related epoxychromans

Somnath Ghosh, Diptendu B. Datta, Indira Datta and **Tapas K. Das**	3775	Studies on enamides—II. A novel photochemical synthesis of 9H-indolo[3,2,1-*de*]phenanthridin-9-one, a benzcanthine analogue
J. G. Dingwall, J. Ehrenfreund and **R. G. Hall**	3787	Diethoxymethylphosphonites and phosphinates. Intermediates for the synthesis of α,β- and γ-aminoalkylphosphonous acids
P. Ceccherelli, M. Curini, M. C. Marcotullio and **O. Rosati**	3809	Biogenetic-type transformation of 3-keto-4,5-epoxy-eudesmanes: synthesis of cyperanes, eremophilanes and spirovetivanes
Philip C. Bulman Page, Shaun A. Harkin, Allan P. Marchington and **Monique B. van Niel**	3819	Addition of aminoketene dithioacetals to α,β-unsaturated ketones. Synthesis and reactions of cyclohex-2-en-1,4-dione monodithioacetals
Philip J. Kocieński, Christopher J. Love, Richard J. Whitby, Gerard Costello and **David A. Roberts**	3839	A total synthesis of (±)-zoapatanol and demethyl-ORF13811
Ronald Grigg, John F. Malone, Theeravat Mongkolaussavaratana and **Sunit Thianpatanagul**	3849	X=Y—ZH compounds as potential 1,3-dipoles—XXIII. Mechanisms of the reactions of ninhydrin and phenalene trione with α-amino acids. X-ray crystal structure of protonated Ruhemann's purple, a stable azomethine ylide
G. Cimino, C. A. Mattia, L. Mazzarella, R. Puliti, G. Scognamiglio, A. Spinella and **E. Trivellone**	3863	Unprecedented alkaloid skeleton from the Mediterranean sponge *Reniera sarai*: X-ray structure of an acetate derivative of sarain-A
Patrizia Ciminiello, Ernesto Fattorusso, Silvana Magno and **Alfonso Mangoni**	3873	Clathridine and its zinc complex, novel metabolites from the marine sponge *Clathrina clathrus*
Valentin Enev, Elena Tsankova and **Bozhana Mikhova**	3879	Transformation of isogermacrone with lead tetraacetate. Formation of a new cyclononane skeleton
Belal Shadid, Henk C. van der Plas, C. R. Vonk, E. Davelaar and **S. A. Ribot**	3889	The synthesis of allylic phosphate derivatives of *trans* zeatin
S. Hirsch and **Y. Kashman**	3897	New glycosphingolipids from marine organisms
Paul Sulmon, Norbert De Kimpe and **Niceas Schamp**	3907	Preparation of piperidines from δ-chloroimines
A. Avenoza, C. Cativiela, J. A. Mayoral and **M. A. Roy**	3923	Synthesis of the four DL-pairs of 2-amino-3-phenylnorbornane-2-carboxylic acids
Achille Barco, Simonetta Benetti, Alberto Casolari, Stefano Manfredini, Gian Piero Pollini, Eleonora Polo and **Vinicio Zanirato**	3935	3,4-Bismethylenecyclopentanone ethylene ketal: a useful diene for [6.5] ring systems: application to a formal synthesis of gibberellic acid
Jorma Arpalahti, Rainer Käppi, Jari Hovinen, Harri Lönnberg and **Jyoti Chattopadhyaya**	3945	The effect of metal ion complex formation on acidic depurination of 2'-deoxyadenosine and 2'-deoxyguanosine
J. M. Antelo, F. Arce, D. Casal, P. Rodríguez and **A. Varela**	3955	Influence of pH on the decomposition of N-chlorodiethanolamine

Harjit Singh and **Kamaljit Singh** 3967 Carbon transfer reactions with heterocycles—V. A facile synthesis of nifedipine and analogues

Mauri Lounasmaa and **Reija Jokela** 3975 Stereoregulation of the C(12*b*)H—C(2)H relationship in the preparation of 2-substituted 1,2,3,4,6,7,12,12*b*-octahydroindolo[2,3-*a*] quinolizines

NUMBER 13

i Contributors to this issue

iii Graphical Abstracts

TETRAHEDRON REPORT NUMBER 254

Richard N. McDonald 3993 Generation, thermochemistry and chemistry of carbene anion radicals and related species

TETRAHEDRON REPORT NUMBER 255

Claude F. Bernasconi 4017 Nucleophilic addition to olefins. Kinetics and mechanism

Antal Simay, Laszlo Prokai and **Nicholas Bodor** 4091 Oxidation of aryloxyaminoalcohols with activated dimethylsulfoxide; a novel C—N oxidation facilitated by neighboring group effect

Charles N. Robinson, Leonard J. Wiseman, Jr. and **Carl D. Slater** 4103 Replacement substituent constants for simple heterocycles

Ta-shue Chou, Shwu-Jiuan Lee and **Nai-Kwang Yao** 4113 Total synthesis of racemic selina-3,7(11)-diene, α-selinene and α-eudesmol

Norio Aimi, Kittisak Likhitwitayawuid, Junko Goto, Dhavadee Ponglux, Joju Haginiwa and **Shin-ichiro Sakai** 4125 Triterpenoidal constituents of *Uncaria florida* Vidal

Kazushige Yamana, Yoshitaka Nishijima, Atsushi Oka, Hidehiko Nakano, Osamu Sangen, Hiroaki Ozaki and **Takeo Shimidzu** 4135 A simple preparation of 5′-O-dimethoxytrityl deoxyribonucleoside 3′-O-phosphorbisdiethylamidites as useful intermediates in the synthesis of oligodeoxyribonucleotides and their phosphorodiethylamidate analogs on a solid support

Jean-Pierre Praly, Laurent Brard, Gérard Descotes and **Loïc Toupet** 4141 Photohalogenation of glycopyranosyl halides: an expedient route to C-1 *gem* dihalogenated sugars

Axel Couture, Pierre Grandclaudon et **Eric Huguerre** 4153 Synthèse et réactivité d'aryl et alkyl-2 (4H) pyrido[3,2-*e*] thiazine-1,3 ones-4

Gérard Cahiez and **Mouad Alami** 4163 Organomanganese(II) reagents—XV. Conjugate addition of organomanganese reagents to alkylidenèmalonic esters and related compounds

L. Mangatal, M.-T. Adeline, D. Guénard, F. Guéritte-Voegelein and **P. Potier** 4177 Application of the vicinal oxyamination reaction with asymmetric induction to the hemisynthesis of taxol and analogues

Jean-Marie Poirier and **Laurent Hennequin** 4191 A new bis-annelation method. Application to steroid synthesis

René Beugelmans, Michèle Bois-Choussy et Qian Tang — 4203 — Synthèse par réaction $S_{RN}1$ de phényl-2 naphtalènes et de binaphtalènes-2,2′ dissymétriques et substitués sur les positions adjacentes à la liaison des cycles. Rôle des facteurs structuraux

J. Martelli, D. Grée, J. Kessabi, R. Grée et L. Toupet — 4213 — Etude de la diastéréosélectivité dans les réactions de Diels-Alder intramoléculaires à partir d'alcools diéniques; syntheses courtes de lactones polyfonctionnelles

P. Cecchi, A. Pizzabiocca, G. Renzi, M. Chini, P. Crotti, F. Macchia and M. Speranza — 4227 — Substituent effects on the regio- and stereoselectivity of gas-phase acid-induced ring opening in 1-arylcyclohexene oxides

G. Houen, C. Larsen and L.-I. Larsson — 4235 — Oxidation of polyamines by pyrroloquinoline quinone (PQQ)

Claudio Giordano, Graziano Castaldi, Silvia Cavicchioli and Marco Villa — 4243 — A stereoconvergent strategy for the synthesis of enantiomerically pure (*R*)-(−) and (*S*)-(+)-2-(6-methoxy-2-naphthyl)-propanoic acid (Naproxen)

Alan R. Katritzky, Ping Lue and Kunihiko Akutagawa — 4253 — Formaldehyde: a reagent for simultaneous protection of heterocyclic NH and activation of alternative locations to electrophilic attack—II. A new synthetic method for the 5(3)-substitution of N-unsubstituted pyrazoles

Pedro Molina, Mateo Alajarín, Angel Vidal, M. de la Concepción Foces-Foces and Félix Hernández Cano — 4263 — New methodology for the preparation of quinazoline derivatives via tandem aza-Wittig/heterocumulene-mediated annulation. Synthesis of 4(3H)-quinazolinones, benzimidazo[1,2-*c*]quinazolines, quinazolino[3,2-*a*]quinazolines and benzothiazolo[3,2-*c*]quinazolines

Michal Novák and Cornelis A. Salemink — 4287 — Novel rearrangements during pyrolysis of cocaine

Dearg S. Brown, Maurizio Bruno, Raymond J. Davenport and Steven V. Ley — 4293 — Substitution reactions of 2-benzenesulphonyl cyclic ethers with carbon nucleophiles

David Tanner and Hua M. He — 4309 — Enantioselective total synthesis of (+)-nitramine

Ferenc Fülöp, Gábor Bernáth, Jorma Mattinen and Kalevi Pihlaja — 4317 — Ring-chain tautomerism of 1,3-oxazolidines prepared from norephedrine and norpseudoephedrine

I — Tetrahedron Reports on Organic Chemistry

XV — Instructions to Contributors

NUMBER 14

i — Contributors to this issue

iii — Graphical Abstracts

4325 — Corrigendum

TETRAHEDRON REPORT NUMBER 256

John P. Devlin and Karl D. Hargrave — 4327 — The design and synthesis of immune regulatory agents: targets and approaches

B. F. Plummer, M. F. Songster, W. H. Watson and A. Nagl — 4371 — A novel conformational energy preference in 7-chloro-7-carboxamido-6*b*,7,8,8*a*-tetrahydrocyclobut[*a*]acenaphthylene

Claudio Mapelli, Luther F. Elrod, Elizabeth M. Holt and **Charles H. Stammer**	4377	The synthesis and characterization of 2,3-methanopyroglutamic acid
Grace B. Borowitz, Irving J. Borowitz, Josephine D. Readio, Gabriel Rubinstein, Peter Nirchio, Matthew Rutten, Timothy Strohmeyer, David Brill, Jill Sparling and **Peter Connolly**	4383	Synthesis and binding studies of neutral dioxydiamide ionophores—III
Marcus E. Brewster, James J. Kaminski, Zoltan Gabanyi, Klara Czako, Agnes Simay and **Nicholas Bodor**	4395	Reactivity of biologically important reduced pyridines—V. Relative importance of electron versus proton loss in ferricyanide-mediated oxidation of dihydronicotinamides
Lucyna Wozniak, Marek Cypryk, Julian Chojnowski and **Gerard Lanneau**	4403	Optically active silyl esters of phosphorus—II. Stereochemistry of reactions with nucleophiles
M. K. Tay, E. About-Jaudet, N. Collignon et **P. Savignac**	4415	Phosphonates α-lithiés, agents de transfert fonctionnel. Préparation de phosphonates α-amides et d'amides α, β-insaturés, α-substitués
Eliane Laurent, Bernard Marquet et **Robert Tardivel**	4431	Mono et difluoration électrochimiques de groupes benzyliques
Pierre Beslin et **Marie-Claire Houtteville**	4445	Sélection simple et diastéréofaciale de la réaction d'aldolisation de l'acide propanedithioïque
J. M. Trendel, F. Lohmann, J. P. Kintzinger, P. Albrecht, A. Chiaroni, C. Riche, M. Cesario, J. Guilhem and **C. Pascard**	4457	Identification of des-*A*-triterpenoid hydrocarbons occurring in surface sediments
O. Duval et **L. Mavoungou Gomès**	4471	Nouvelle méthode de synthèse des (furyl-2)-2 cyclanones
C. Gesto, E. de la Cuesta and **C. Avendaño**	4477	Synthesis of diaza-anthraquinones by hetero Diels-Alder cycloaddition reactions
K. J. Szabó, J. Császár and **A. Toró**	4485	Synthesis of new heterocyclic ring systems via nucleophilic substitution of pyrimido[4,5-*d*]pyridazines
F. Bermejo González, M. Bordell Martín, A. Fernández Mateos and **R. Rubio González**	4497	Preparation of 4 α,8 β-dimethyl-4 β-methoxycarbonyl-17a-oxa-D-homo-androstan-17-one, intermediate of interest in the synthesis of 8 β-methyl-testolactone
J.-C. Wu and **J. Chattopadhyaya**	4507	Michael addition reactions of α, β-ene-3'-phenylselenone of uridine. New synthesis of 2',3'-dideoxy-*ribo*-aziridino-, 2',3'-dideoxy-2',3'-*ribo*-cyclopropyl- and 2,2'-*O*-anhydro-3'-deoxy-3'-amino uridine derivatives
Stefania Barbato, Lorenzo De Napoli, Luciano Mayol, Gennaro Piccialli and **Ciro Santacroce**	4523	A polymer-nucleotide linkage useful for the solid phase synthesis of cyclic oligodeoxyribonucleotides
Jack E. Baldwin, Richard T. Freeman, Christopher Lowe, Christopher J. Schofield and **Eun Lee**	4537	A γ-lactam analogue of the penems possessing antibacterial activity

Malcolm M. Campbell, Judy Long Fox, Malcolm Sainsbury and **Y. Liu**	4551	Synthesis of structural variants of phospholipids: inhibition of phospholipase A_2
Adnan Atfah and **John Hill**	4557	Reaction of benzofurazan 1-oxide with 1-(2-naphthyl)- and 1-hetaryl-butane-1,3-diones; preparation of aryl and hetaryl 2-quinoxalinyl ketones
Odon Arjona, Roberto Fernández de la Pradilla, Joaquin Plumet and **Alma Viso**	4565	Regioselective electrophilic additions to 2-oxygenated-7-oxabicyclo[2.2.1]hept-5-enes: a simple entry into the 4,7-dioxatricyclo[3.2.1.$0^{3,6}$]octane skeleton
Š. Horvat, J. Horvat, D. Kantoci and **L. Varga**	4579	Glycoconjugates of opioid peptides—III. A novel regioselective synthesis of 6-*O*-peptidyl-D-glycopyranoses using unprotected sugars
D. N. Nicolaides, G. K. Papageorgiou and **J. Stephanidou-Stephanatou**	4585	Synthesis of some fused pyridine- and oxazole-polycyclic systems from 10-(methoxyimino)phenanthren-9-one
Jacek Skarżewski	4593	Carbon-acylations in the presence of magnesium oxide. A simple synthesis of methanetricarboxylic esters
N. M. Yousif	4599	The reaction of nitriles with O,O-dialkyldithiophosphoric acids
John P. Gilday, Joanna T. Negri and **David A. Widdowson**	4605	A novel order of *ortho*-directing abilities in the lithiation of η^6-arene-tricarbonylchromium(0) complexes
Luiz-Claudio Almeida Barbosa, John Mann, Philip D. Wilde and **Mark W. Finch**	4619	New routes to substituted tropones
Hendrik H. Mooiweer, Henk Hiemstra and **W. Nico Speckamp**	4627	Synthesis of γ,δ-unsaturated α-amino acids from allylsilanes and glycidyl cation equivalents
A. Grandas, F. Albericio, J. Josa, E. Giralt, E. Pedroso, J. M. Sabatier and **J. Van Rietschoten**	4637	Convergent solid phase peptide synthesis—VII. Good yields in the coupling of protected segments on a solid support
Kitti Amornraksa, Darrin Barr, Gregory Donegan, Ronald Grigg, Piniti Ratananukul and **Visuvanthar Sridharan**	4649	X=Y—ZH compounds as potential 1,3-dipoles—XXIV. Preparation and thermal fragmentation of imidazolidines. Influence of metal salts on pyrrolidine versus imidazolidine formation
	I	Instructions to Contributors

NUMBER 15

TETRAHEDRON SYMPOSIA-IN-PRINT NUMBER 39

COVALENTLY LINKED DONOR-ACCEPTOR SPECIES FOR MIMICRY OF PHOTOSYNTHETIC ELECTRON AND ENERGY TRANSFER

Guest Editors: DEVENS GUST and THOMAS A. MOORE

Arizona State University, Tempe, Arizona, U.S.A.

	i	Contributors to this issue
	vii	Announcement: *Tetrahedron* Symposia-in-Print
	xi	Preface
Nien-chu C. Yang, David W. Minsek, Douglas G. Johnson, James R. Larson, Jacob W. Petrich, Rex Gerald, III and **Michael R. Wasielewski**	4669	Photochemistry of polychromophoric arylamines
Noboru Mataga, Hiroshi Yao and **Tadashi Okada**	4683	Picosecond laser photolysis studies on dimer model systems in relation to photosynthetic charge separation processes
M. Van Damme, J. Hofkens, F. C. De Schryver, T. G. Ryan, W. Rettig and **A. Klock**	4693	Solvent dynamics and intramolecular charge transfer in 4-cyano-4'-butyloxybiphenyl(4COB)
Brian A. Gregg, Marye Anne Fox and **Allen J. Bard**	4707	Surfactant porphyrins linked to ruthenium oxide microcolloids: a microheterogeneous photoreactor
Yoshiteru Sakata, Yasuhiro Hirano, Hitoshi Tatemitsu, Soichi Misumi, Hideo Ochiai and **Hitoshi Shibata**	4717	Synthesis of a photosynthetic model compound with a long alkyl chain and its incorporation into bovine serum albumin
G. R. Seely	4729	Reaction of chlorophyll with 2,2'-dithiobis(5-nitropyridine)
Anthony Harriman and **Jorge Davila**	4737	Spectroscopic studies of some zinc *meso*-tetraaryl porphyrins
H. Oevering, J. W. Verhoeven, M. N. Paddon-Row and **J. M. Warman**	4751	Charge-transfer absorption and emission resulting from long-range through-bond interaction; exploring the relation between electronic coupling and electron-transfer in bridged donor-acceptor systems
Jonathan L. Sessler, Martin R. Johnson and **Tzuhn-Yuan Lin**	4767	Absorption and static emission properties of monometalated quinone-substituted porphyrin dimers: evidence for "superexchange" mediated electron transfer in multicomponent photosynthetic model systems

Michael R. Wasielewski, Mark P. Niemczyk, Douglas G. Johnson, Walter A. Svec and David W. Minsek	4785	Ultrafast photoinduced electron transfer in rigid donor-spacer-acceptor molecules: modification of spacer energetics as a probe for superexchange
David Mauzerall, Jurgen Weiser and Heinz Staab	4807	Electron transfer in photoexcited porphyrin quinone cyclophanes
Atsuhiro Osuka, Kazuhiro Maruyama and Satoshi Hirayama	4815	Quinone-linked and quinone-capped porphyrins. Their one-pot photochemical synthesis and fluorescence behavior
Russell A. Cormier, Mary R. Posey, William L. Bell, Harold N. Fonda and John S. Connolly	4831	Synthesis and characterization of a directly linked porphyrin-anthraquinone molecule
Jonathan S. Lindsey, Philip A. Brown and David A. Siesel	4845	Visible light-harvesting in covalently-linked porphyrin-cyanine dyes
Devens Gust, Thomas A. Moore, Ana L. Moore, Gilbert Seely, Paul Liddell, Donna Barrett, Larry O. Harding, Xiaochun C. Ma, Seung-Joo Lee and Feng Gao	4867	A carotenoid-porphyrin-diquinone tetrad: synthesis, electrochemistry and photoinitiated electron transfer
M. Momenteau, B. Loock, P. Seta, E. Bienvenue and B. d'Epenoux	4893	A carotenoporphyrin-quinone triad designed from a basket-handle porphyrin: synthesis and photo electrochemical properties
Warren F. Beck, Jonathan Sears, Gary W. Brudvig, Robert J. Kulawiec and Robert H. Crabtree	4903	Oxidation of exogenous substrates by the O_2-evolving center of photosystem II and related catalytic air oxidation of secondary alcohols via a tetranuclear manganese(IV) complex
	I	Instructions to Contributors

NUMBER 16

	i	Contributors to this issue
	iii	Graphical Abstracts
		TETRAHEDRON REPORT NUMBER 257
Ralph M. Pollack	4913	Stereoelectronic control in the reactions of ketones and their enol(ate)s
R. J. Bergeron and J. S. McManis	4939	The total synthesis of bisucaberin
Eugene A. Mash, Shivanand K. Math and Christopher J. Flann	4945	Homochiral ketals in organic synthesis. Enantioselective synthesis and absolute configuration of (–)-modhephene
Alejandro J. Vila, Rolando A. Spanevello, Alejandro C. Olivieri, Manuel Gonzalez Sierra and James D. McChesney	4951	Conformational analysis of the 4a-methyl octahydrophenanthrene system. A spectroscopic and theoretical approach

Mark R. TePaske, James B. Gloer, Donald T. Wicklow and Patrick F. Dowd	4961	Three new aflavinines from the sclerotia of *Aspergillus tubingensis*
Akira Ando and Takayuki Shioiri	4969	Enantioselective synthesis of β-hydroxy-α-methyl carbonyl compounds by aldol reaction
A. Klausener, G. Beyer, H. Leismann, H.-D. Scharf, E. Müller, J. Runsink and H. Görner	4989	On the mechanism and stereochemistry of hydrogen transfer involving photodeoxygenation of sugar esters in hexamethylphosphoric triamide/water
J. Spörle, H. Becker, M. P. Gupta, M. Veith and V. Huch	5003	Novel C-35 terpenoids from the Panamanian liverwort *Plagiochila moritziana*
Jürgen Werry, Helmut Stamm, Pen-Yuan Lin, Reinhard Falkenstein, Stefan Gries and Hermann Irngartinger	5015	Homolytic aziridine opening (aza variant of cyclopropylcarbinyl-homoallyl rearrangement) by addition of tributyltin radical to N-acylaziridines. Factors contributing to the regioselectivity
Patrice Talaga, Marcel Schaeffer, Henri Mattes, Claude Benezra and Jean-Luc Stampf	5029	Synthesis of Boc-Cys-Ala-OMe and its stereoselective addition to α-methylene-γ-butyrolactones
Choukri Zeggaf, Joël Poncet, Patrick Jouin, Marie-Noëlle Dufour and Bertrand Castro	5039	Isopropenyl chlorocarbonate (IPCC) in amino acid and peptide chemistry: esterification of N-protected amino acids; application to the synthesis of the depsipeptide valinomycin
Jean-Pierre Barnier, Luis Blanco, Eryka Guibé-Jampel and Gérard Rousseau	5051	Preparation of (*R*)-veratryl- and (*R*)-(3)-methoxybenzyl)succinates
Amit Chakrabarti, Goutam K. Biswas and D. P. Chakraborty	5059	Photo-Fries rearrangements in N-sulphonyl carbazoles
Josef Pola	5065	Laser powered homogeneous decomposition of methyl acrylate and methacrylate
A. San Feliciano, M. Medarde, J. L. López, J. A. P. Pereira, E. Caballero and A. Perales	5073	Reaction of SeO_2 with dienes—I. Linalyl acetate
Jan Roschester and Jan Sandström	5081	Conformational analysis of *N*-(1-methoxycarbonylethyl)-Δ^4-thiazoline-2-thiones by temperature-dependent circular dichroism and NMR spectroscopy and by molecular mechanics calculations
R. D. Chambers, R. Jaouhari and D. O'Hagan	5101	Fluorine in enzyme chemistry—II. The preparation of difluoromethylenephosphonate analogues of glycolytic phosphates. Approaching an isosteric and isoelectronic phosphate mimic
N. K. Kochetkov, A. F. Sviridov, M. S. Ermolenko, D. V. Yashunsky and V. S. Borodkin	5109	Stereo-controlled synthesis of erythronolides A and B from 1,6-anhydro-β-D-glucopyranose (levoglucosan). Skeleton assembly in (C_9-C_{13}) + (C_7-C_8) + (C_1-C_6) sequence
G. Barbarella and A. Bongini	5137	^{13}C NMR and theoretical calculations of silyl ketones and thioketones

Alessandro Dondoni, Giancarlo Fantin, Marco Fogagnolo and **Paola Pedrini** 5141 A concise thiazole mediated synthesis of L-(–)rhodinose from (*S*)-ethyl lactate. The thiazole route to deoxysugars

A. E. Frissen, A. T. M. Marcelis, G. Geurtsen, D. A. de Bie and **H. C. van der Plas** 5151 Intramolecular Diels-Alder reactions of 2-(alkynyl)pyrimidines and 2-(alkynyl)pyridines

Glauco Tonachini and **Carlo Canepa** 5163 An *ab initio* theoretical study of the structure and stability of 1-fluoropropenide and 1,1-difluoropropenide and of the corresponding monomeric lithiated species

Steven V. Ley, James C. Anderson, Wally M. Blaney, Philip S. Jones, Zev Lidert, E. David Morgan, Nicholas G. Robinson, Dinos Santafianos, Monique S. J. Simmonds and **Peter L. Toogood** 5175 Insect antifeedants from *Azadirachta indica*—V. Chemical modification and structure-activity relationships of azadirachtin and some related limonoids

Harjit Singh, Rakesh Sarin, Kamaljit Singh, Rosalinda Contreras and **Guillermo Uribe** 5193 Reactions of sodium cyanoborohydride with benzothiazolium and Δ^2-thiazolinium cations. Formation of benzothiazolines, thiazolidines and stable thiazaboroles

Antonio G. González, Zahira E. Aguiar, Javier G. Luis and **Angel G. Ravelo** 5203 New diterpenes from *Salvia texana*. Chemical and biogenetic aspects

Michael J. Begley, David R. Cheshire, Timothy Harrison, John H. Hutchinson, Peter L. Myers and **Gerald Pattenden** 5215 A new synthetic route to (±)-forskolin

Timothy Harrison, Peter L. Myers and **Gerald Pattenden** 5247 Radical cyclisations onto 2(5*H*)-furanone and maleate electrophores. An approach to the spiro- and linear-fused γ-lactone ring systems found in the ginkgolides

Marta Catellani, Gian P. Chiusoli and **Stefano Concari** 5263 A new palladium catalyzed synthesis of *cis, exo*-2,3-diarylsubstituted bicyclo[2.2.1]heptanes or bicyclo[2.2.1]hept-2-enes

Athelstan L. J. Beckwith and **Steven W. Westwood** 5269 The synthesis of indolizidine and quinolizidine ring systems by free radical cyclization of 4-aza-6-methoxycarbonyl-5-hexenyl radicals

Ian Paterson, Mark Gardner and **Bernard J. Banks** 5283 Studies in marine cembranolide synthesis: a synthesis of 2,3,5-trisubstituted furan intermediates for lophotoxin and pukalide

Roberta Cacciapaglia, Silvia Lucente, Luigi Mandolini, Arie R. van Doorn, David N. Reinhoudt and **Willem Verboom** 5293 Catalysis by alkali and alkaline-earth metal ions in nucleophilic attack of methoxide ion on crown ethers bearing an intra-annular acetoxy group

I Instructions to Contributors

NUMBER 17

	i	Contributors to this issue
	iii	Graphical Abstracts
	5305	Corrigenda
		TETRAHEDRON REPORT NUMBER 258
Nathan L. Bauld	5307	Cation radical cycloadditions and related sigmatropic reactions
		TETRAHEDRON REPORT NUMBER 259
Eric J. Toone, Ethan S. Simon, Mark D. Bednarski and **George M. Whitesides**	5365	Enzyme-catalyzed synthesis of carbohydrates
Dario Gargiulo, Timothy A. Blizzard and **Koji Nakanishi**	5423	Synthesis of mosesin-4, a naturally occurring steroid saponin with shark repellent activity, and its analog 7-β-galactosyl ethyl cholate
Trevor C. McMorris, Michael J. Kelner, Raj K. Chadha, Jay S. Siegel, Surk-sik Moon and **Medgar M. Moya**	5433	Structure and reactivity of illudins
Z. Marcinow, D. K. Clawson and **P. W. Rabideau**	5441	Silicon-modified Birch reduction and reductive alkylation of polynuclear aromatics
John M. McIntosh, Kenneth C. Cassidy and **Luca C. Matassa**	5449	Camphor-derived alcohols: an anomalous reaction of 3-hydroxycamphor and the influence of internal alkoxides on the alkylation stereochemistry of glycinate imines
Shunichi Yamakage, Masayo Fujii, Hiroshi Takaku and **Masaru Uemura**	5459	1,1,1,3,3,3-Hexafluoro-2-propyl group as a new phosphate protecting group for oligoribonucleotide synthesis in the phosphotriester approach
Hiromichi Ohta, Yoichi Kimura, Yasushi Sugano and **Takeshi Sugai**	5469	Enzymatic kinetic resolution of cyanohydrin acetates and its application to the synthesis of (*S*)-(−)-frontalin
Michel P. Crozet and **Patrice Vanelle**	5477	Synthesis of new 5-nitrotetrahydro-1,3-oxazine derivatives via electron-transfer reactions
M. A. Zouaoui, M. C. Carre, B. Jamart-Gregoire, P. Geoffroy and **P. Caubere**	5485	New easy access to benzocyclobutenone derivatives
Ali Boulmedais, Michel Jubault et **André Tallec**	5497	Electroréduction d'une oxime chirale. Obtention d'une dicétopipérazine optiquement active
Kai van Laak and **Hans-Dieter Scharf**	5511	Syntheses of 4-hydroxy-5-iodo-2,3-dimethoxy-6-methylbenzoic acid and 5-bromo-4-hydroxy-2,3-dimethoxy-6-methylbenzoic acid—aromatic constituents of the calichemicins
Ralf Brückmann, Klaus Schneider and **Gerhard Maas**	5517	Wolff rearrangement of (1-diazo-2-oxoalkyl) silanes
Rosslyn C. Gash, Finlay MacCorquodale and **John C. Walton**	5531	Free radical cyclisation of unsaturated epoxides
A. Csámpai, K. Körmendy, P. Sohár and **F. Ruff**	5539	Bromoalkylphthalazinones and isomeric oxazolinium salts as intermediates and synthons

Jan Bergman, Per-Ola Norrby, Ulf Tilstam and **Lennart Venemalm**	5549	Structure elucidation of some products obtained by acid-catalyzed condensation of indole with acetone
Henk L. Aalten, Gerard van Koten, David M. Grove, Thijs Kuilman, Onno G. Piekstra, Lumbertus A. Hulshof and **Roger A. Sheldon**	5565	The copper catalysed reaction of sodium methoxide with aryl bromides. A mechanistic study leading to a facile synthesis of anisole derivatives
Marina Burdisso, Remo Gandolfi and **Paolo Grünanger**	5579	Control of regiochemistry in nitrone cycloadditions. Regioselectivity of the reactions of trisubstituted nitrones with electron-deficient and conjugated dipolarophiles
Jan Vader, Lucas L. Doddema, Rob M. Peperzak, Aede de Groot, Jan M. M. Smits and **Paul T. Beurskens**	5595	The synthesis of a key intermediate in the total synthesis of insect antifeedant clerodanes
A. E. Frissen, A. T. M. Marcelis, D. G. Buurman, C. A. M. Pollmann and **H. C. van der Plas**	5611	Synthesis of 1,3-dihydrofuro[3,4-*c*]pyridines and 5,7-dihydrofuro[3,4-*b*]pyridines by intramolecular Diels-Alder reactions of pyrimidines. Investigation of the effect of steric interactions on the reaction rate
Bianca P. Andreini, Adriano Carpita, Renzo Rossi and **Barbara Scamuzzi**	5621	Palladium-catalyzed diastereoselective syntheses of (*E*)-1-trimethylsilyl-2-alkenes, (*E*)-1-trimethylsilyl-1-alken-3-ynes, (1*E*,5*E*)-1-trimethylsilyl-1,5-alkadien-3-ynes, (1*E*,3*Z*)-and (1*E*,3*E*)-1-trimethylsilyl-1,3-alkadienes
David Crich and **John W. Davies**	5641	Free-radical addition to di- and tripeptides containing dehydroalanine residues
C. W. Bird, H. I. Butler, E. C. J. Coffee, L. M. James and **B. W. C. Schmidl**	5655	The synthesis of some carbaprostacyclin precursors
F. Felluga, P. Nitti, G. Pitacco and **E. Valentin**	5667	Carbo- and heterocyclization reactions of 2-(4-morpholinyl)-1-phenylpropene and nitroolefins
Joseph P. Vacca, S. Jane deSolms, Joel R. Huff, David C. Billington, Raymond Baker, Janusz J. Kulagowski and **Ian M. Mawer**	5679	The total synthesis of *myo*-inositol polyphosphates
	I	Instructions to Contributors

NUMBER 18

	i	Contributors to this issue
	iii	Graphical Abstracts
		TETRAHEDRON REPORT NUMBER 260
Franklin A. Davis and **Aurelia C. Sheppard**	5703	Applications of oxaziridines in organic synthesis
Yasuo Kato, Yasuhisa Asano, Akiko Nakazawa and **Kiyosi Kondo**	5743	First stereoselective synthesis of D-amino acid N-alkyl amide catalyzed by D-aminopeptidase
Yukie Kitamura, Makoto Nishizawa, Koh Kaneko, Mitsuhiko Ikura, Kunio Hikichi, Motoo Shiro, Yuh-Pan Chen and **Hong-Yen Hsu**	5755	New steroidal alkaloids having a novel seven ring skeleton from *Fritillaria ussuriensis* Maxim.

Yoshio Ito, Yuko Kobayashi, Takeo Kawabata, Mitsuru Takase and **Shiro Terashima**	5767	Novel syntheses of the carbapenem key intermediates, (3*R*,4*R*)-4-acetoxy-3-[(*R*)-1-(*t*-butyldimethylsilyloxy)ethyl]-2-azetidinone and (3*S*,4*R*)-3-[(*R*)-1-(*t*-butyldimethylsilyloxy)ethyl]-4-carboxymethyl-2-azetidinone, from (*S*)-ethyl lactate
Kozo Shishido, Akitake Yamashita, Kou Hiroya, Keiichiro Fukumoto and **Tetsuji Kametani**	5791	A new synthetic route to 2-hydroxynaphthalene-1-carboxylic acid derivatives. An efficient access to the naphthalene moiety of neocarzinostatin chromophore
Hans Günter Aurich and **Klaus-Dieter Möbus**	5805	Nitroxides (aminyl oxides)—XL. ESR spectroscopic studies of β-sulfonyl substituted vinyl nitroxides and of a vinylogous nitronyl nitroxide
Hans Günter Aurich and **Klaus-Dieter Möbus**	5815	Nitroxides (aminyl oxides)—XLI. Formation and dimerization of β-sulfonyl substituted vinyl nitroxides. CC-versus OC-dimerization
Atef Hamed, Edgar Müller, Johannes C. Jochims, Laszlo Zsolnai and **Gottfried Huttner**	5825	Reactions of 1-oxa-3-azoniabutatriene salts with 1,3-dipoles
G. Boireau, A. Deberly and **D. Abenhaïm**	5837	Synthèse d' α-hydroxyacides optiquement actifs par addition d'organozinciques sur le phénylglyoxalate de (-) menthyle
S. Bashwira, C. Hootelé, D. Tourwé, H. Pepermans, G. Laus and **G. Van Binst**	5845	Cleromyrine I, a new cyclohexapeptide from *Clerodendrum myricoides*
Jean-Pierre Gesson, Jean-Claude Jacquesy and **Brigitte Renoux**	5853	A new chiral route toward terpenoids. Annulation of carvone to *trans*- and *cis*-fused bicyclic synthons
H. Chandrasiri Fernando, A. A. Leslie Gunatilaka, Yasuhiro Tezuka and **Tohru Kikuchi**	5867	Studies on terpenoids and steroids—XVIII. Balaenonol, balaenol and isobalaendiol: three new 14(15)-ene-quinone-methide triterpenoids from *Cassine balae*
Thomas V. Lee, Julia A. Channon, Carmel Cregg, John R. Porter, Frances S. Roden and **Helena T.-L. Yeoh**	5877	The cerium (III) mediated reaction of trimethylsilylmethyl magnesium chloride with esters and lactones: the efficient synthesis of some functionalised allylsilanes of use in annulation reactions
Thomas V. Lee, Raymond J. Boucher, John R. Porter and **Caroline J. M. Rockell**	5887	Reactions of O-silylated enolates with allylsilane bifunctional [4+2] and [5+2] annulating reagents
Steven M. F. Lai, Jack J. A. Orchison and **Donald A. Whiting**	5895	A new synthetic approach to the rotenoid ring system
Babady-Bila, A. Kilonda, S. Toppet, F. Compernolle and **G. Hoornaert**	5907	New triterpenes from *Heinsia crinata*
Franca M. Cordero, Andrea Goti, Francesco De Sarlo, Antonio Guarna and **Alberto Brandi**	5917	Rearrangement of isoxazoline-5-spiro derivatives—IV. Synthesis of medium size benzofused azaheterocycles
Gonzalo Blay, Isabel Fernández, Begoña García and **José R. Pedro**	5925	Synthesis of various natural 8,12-elemanolides from artemisin
Goffredo Rosini, Roberto Ballini and **Emanuela Marotta**	5935	Functionalized nitroalkanes in synthesis of 1,6-dioxaspiro[4.5]decane components of *Paravespula vulgaris* pheromone

Wayne M. Best and **David A. Widdowson** — 5943 Reactions related to coenzyme B_{12} dependent rearrangements: metal mediated free radical acyl migrations in methyl and cyclopropyl substituted models

N. F. Masters, N. Mathews, G. Nechvatal and **D. A. Widdowson** — 5955 *Peri*-directed 7-substitution in η^6-indoletricarbonylchromium (0) complexes

G. Cardinale, J. C. Grimmelikhuysen, J. A. M. Laan, F. P. van Lier, D. van der Steen and **J. P. Ward** — 5971 Reaction of alkoxyhydroperoxides with metal salts: alkyl halide preparation

Sk. Asrof Ali, Javaid H. Khan, Mohammed I. M. Wazeer and **Herman P. Perzanowski** — 5979 The 1,3-dipolar cycloaddition of cyclic nitrones with 1,2-disubstituted alkenes

Manuel Norte, José J. Fernández and **José Z. Ruano** — 5987 Three new bromo ethers from the red alga *Laurencia obtusa*

Pál Herczegh, Martina Zsély, László Szilágyi, Zoltán Dinya and **Rezső Bognár** — 5995 Intramolecular reactions of compounds derived from sugars—III. High diastereoselection in the intramolecular Diels-Alder reaction of sugar based 1,7 (*E,Z*),9-decatrienes

Stojan Stavber, Boris Šket, Barbara Zajc and **Marko Zupan** — 6003 Chemistry of organo halogenic molecules—C. Comparative behaviour of xenon difluoride and caesium fluoroxysulphate in the fluorination of enol acetates and ketones

Aileen M. Boss, Derek W. Clissold, John Mann, Andrew J. Markson and **Christopher P. Thickitt** — 6011 A concise synthesis of racemic pyridoglutethimide and its resolution using chiral stationary phase HPLC

I Tetrahedron Reports on Organic Chemistry

XV Instructions to Contributors

NUMBER 19

i Contributors to this issue

iii Graphical Abstracts

6017 Corrigendum

TETRAHEDRON REPORT NUMBER 261

Leonid N. Markovski and **Vadim D. Romanenko** — 6019 Phosphaalkynes and phosphaalkenes

Frank L. Switzer, Herman Van Halbeek, Elizabeth M. Holt, Charles H. Stammer and **Mikal E. Saltveit, Jr.** — 6091 Synthesis of (±)-2,3-methanoproline: a novel inhibitor of ethylene biosynthesis

Bruce A. Barner, Yalei Liu and **Md. Abdur Rahman** — 6101 Diastereoselectivity in the $TiCl_4$-mediated aldol reaction of cyclic dienylsilyl ethers

H. Martin R. Hoffmann, Boris Schmidt and **Stefan Wolff** — 6113 Preparation of 5-bromotetronates [4-alkoxy-5-bromo-2(5H)-furanones] and a new concept for the synthesis of aflatoxins and related structure types. Tributyltin hydride versus palladium-promoted intramolecular hydroarylation

Sabine Englisch-Peters — 6127 Synthesis of ω-hydroxy analogues of valine, leucine and isoleucine

Takeshi Sugai, Hideaki Kakeya, Hiromichi Ohta, Mitsuo Morooka and **Shigeru Ohba**	6135	A synthesis of (-)-deoxypodocarpic acid methyl ester via an enzymatic enantioselective hydrolysis of the key intermediate enol ester
Shin-ichi Ohnuma, Michio Ito, Tanetoshi Koyama and **Kyozo Ogura**	6145	Undecaprenyl diphosphate synthase reaction with artificial substrate homologues—novel behavior in the termination of prenyl chain elongation
J. P. Célérier, M. Haddad, C. Saliou, G. Lhommet, H. Dhimane, J. C. Pommelet, et **J. Chuche**	6161	β-Enaminoesters bicycliques: synthèse et réduction stéréospécifiques. Accès à l'isorétronécanol, la trachélanthamidine, la lupinine et l'épilupinine
Françoise Henin, Reza Mortezaei, Jacques Muzart, Jean-Pierre Pete et **Olivier Piva**	6171	Photodéconjugaison énantiosélective d'esters et de lactones conjuguées en présence d'éphédrine
A. Alexakis and **D. Jachiet**	6197	Boron trifluoride assisted opening of epoxides by lithium alkenyl aluminate reagents
A. Alexakis, D. Jachiet and **L. Toupet**	6203	A completely stereoselective intramolecular Diels-Alder reaction in the substituted cyclohexanol series
Marek Biedrzycki, Dick A. de Bie and **Henk C. van der Plas**	6211	Intramolecular inverse electron demand Diels-Alder reactions of pyrazines
Mark S. Baird and **Helmi H. Hussain**	6221	1,2-Dichloro-3,3-dimethylcyclopropene as a source of 1,2-dichloro-3-methylbut-2-enylidene at ambient temperature
S. J. Neeson and **P. J. Stevenson**	6239	Rhodium catalysed synthesis of illudalanes
Alfred Hassner and **Bilha Fischer**	6249	4,5- and 2,5-Additions to oxazoles
J. S. Yadav, P. Radha Krishna and **M. K. Gurjar**	6263	Novel synthesis of 1,7-dihydrohept-4-yne derivatives: application to the total synthesis of (±) patulolide A
J. Béres, Gy. Sági, E. Baitz-Gács, I. Tömösközi, L. Gruber and **L. Ötvös**	6271	Synthetic studies towards (-)-carba-3'-deoxy-3'-fluorothymidine
S. V. Luis, F. Gaviña, P. Ferrer, V. S. Safont, M. C. Torres and **M. I. Burguete**	6281	Non concerted pathways in the generation of dehydroarenes by thermal decomposition of diaryliodonium carboxylates
E. L. Ghisalberti, P. R. Jefferies, B. W. Skelton, A. H. White and **R. S. F. Williams**	6297	A new stereochemical class of bicyclic sesquiterpenes from *Eremophila virgata* W. V. Fitzg. (Myoporaceae)
Jack E. Baldwin, Mark G. Moloney and **Michael North**	6309	Non-proteinogenic amino acid synthesis. The β-anion derived from aspartic acid, and its application to α-amino acid synthesis
Jack E. Baldwin, Mark G. Moloney and **Michael North**	6319	Non-proteinogenic amino acid synthesis: synthesis of β,γ-unsaturated α-amino acids from aspartic acid
	I	Instructions to Contributors

NUMBER 20

i Contributors to this issue

iii Graphical Abstracts

TETRAHEDRON REPORT NUMBER 262

C. Baschang 6331 Muramylpeptides and lipopeptides: studies towards immunostimulants

---

Gábor Blaskó and **Geoffrey A. Cordell** 6361 Total synthesis of (±)-11-*O*-methyl-caesalpin J and its C-13 epimer

Kohfuku Kohda, Moriyoshi Yasuda, Hiroshi Ukai, Kunihisa Baba, Yuriko Yamagata and **Yutaka Kawazoe** 6367 Synthesis and properties of *N*-aminoguanines

Hisato Takeuchi, Satoshi Hagiwara and **Shoji Eguchi** 6375 A new efficient synthesis of imidazolinones and quinazolinone by intramolecular aza-Wittig reaction

Takeshi Kitahara, Kazushige Touhara, Hidenori Watanabe and **Kenji Mori** 6387 Stereocontrolled synthesis of both the enantiomers of phaseic acid and its methyl ester, a pivotal metabolite of abscisic acid

Tadashi Sato, Toshiyuki Watanabe, Toshihiro Hayata and **Toru Tsukui** 6401 Regio and stereoselective preparation of substituted cyclopentanones from cyclohexenones utilizing trimethylstannyllithium as a key reagent

Hermann Künzer, Gerhard Sauer and **Rudolf Wiechert** 6409 Regioselective synthesis of ring A polymethylated steroids in the androstane series

Ulf Pindur and **Myung-Hwa Kim** 6427 First reactions of vinylindoles with diethyl mesoxalate, nitrosobenzene and chlorosulfonyl isocyanate: new functionalized and [*b*]annellated indoles

L. Gerardo Zepeda, Mirna Rojas-Gardida, Martha S. Morales-Rios et **Pedro Joseph-Nathan** 6439 Synthèse directe d'indoles anti-hypertensifs

Salih Hacini and **Maurice Santelli** 6449 Prelog-Djerassi lactone. Preparation of the Grieco intermediate from (-)-*trans*-pulegenic acid

Patrice Demonchaux, Ali Laayoun, Martine Demeunynck and **Jean Lhomme** 6455 Synthesis of *N*-acridinyl and *N*-quinolinyl derivatives of radioprotective amino-thiols

C. Portella et **M. Iznaden** 6467 Défluoration photoréductive d'esters d'acides perfluorés: synthèse d'hydro-2 perfluoroalcanoates d'alkyle

G. Cimino, A. De Giulio, S. De Rosa and **S. De Stefano** 6479 New sterpurane sesquiterpenoid from the Mediterranean *Alcyonum acaule:* structure of 3-acetoxy-sterpurene

Gopalpur Nagendrappa 6485 Bromine induced autoxidation and bromination studies of chlorinated norbornenes

Valery N. Charushin, Beb van Veldhuizen, Henk C. van der Plas and **Casper H. Stam** 6499 Reactivity of 3-alkynylthio-1-ethyl-1,2,4-triazinium salts in intramolecular Diels-Alder reactions

W. A. W. Stolle, A. T. M. Marcelis, A. Koetsier and **H. C. van der Plas**	6511	Intramolecular Diels-Alder reactions of pyrimidines: synthesis of tricyclic annelated pyridines
Bart Geurtsen, Dick A. de Bie and **Henk C. van der Plas**	6519	Intramolecular Diels-Alder reactions of quaternary pyrazinium salts and protonated pyrazinium cations. Synthesis of annelated pyridinium salts and annelated pyridines
F. Orsini and **G. Sala**	6531	Diels-Alder cycloadditions of 1,4-diaza-1,3-butadienes: a MNDO investigation
Enrique Sedano, Cecilia Sarasola and **Jesus M. Ugalde**	6537	Conformations and charge distributions in 1,2-dinitrosoethylene and furoxan—II. *Ab initio* electrostatic potentials and relative bond strengths
Mohammad M. Al-Arab, Bader S. Ghanem and **Alan O. Fittoń**	6545	A unique trimolecular Michael reaction and cyclization
Arturo San Feliciano, Esther Caballero, Juan A. P. Pereira and **Pilar Puebla**	6553	Pyrrole derivatives from α-ketoaldehydes
Piet Herdewijn	6563	Reaction of adenine nucleosides, tosylated in the carbohydrate moiety, with lithium triethylborohydride
David Crich and **Simon M. Fortt**	6581	Acyl radical cyclizations in synthesis—I. Substitutent effects on the mode and efficiency of cyclization of 6-heptenoyl radicals
	I	Instructions to Contributors

NUMBER 21

	i	Contributors to this issue
	iii	Graphical Abstracts
	6599	Corrigendum
		TETRAHEDRON REPORT NUMBER 263
George W. Kabalka and **Rajender S. Varma**	6601	The synthesis of radiolabeled compounds via organometallic intermediates
Stephen Hanessian, Yoji Sakito, Daljit Dhanoa and **Lucia Baptistella**	6623	Synthesis of (+)-palitantin
James D. White, Rodney A. Badger, Hollis S. Kezar III, Alexander J. Pallenberg and **Guy A. Schiehser**	6631	Structure, synthesis and absolute configuration of leptosphaerin, a metabolite of the marine ascomycete *Leptosphaeria oraemaris*
Luis Sambrotta, Irene Rezzano, Graciela Buldain and **Benjamín Frydman**	6645	Synthesis of 8-demethyl-8-formyl protoporphyrin IX and of 8-demethyl protoporphyrin IX
Sunil K. Chattopadhyay and **Koppaka V. Rao**	6653	Cyclooctadiene systems derived from austrobailignan-5: revised stereochemical assignments
Takeshi Akasaka, Yoshihisa Misawa, Midori Goto and **Wataru Ando**	6657	Singlet oxygen and triazolinedione additions to α,β-unsaturated sulfoxides

Kurt Schank, Aboel-Magd A. Abdel Wahab, Peter Eigen and **Jürgen Jager**	6667	Donor substituted sulfonyl carbenes—I. Methoxy arylsulfonyl carbenes
Andreas Huth, Ilse Beetz and **Ingrid Schumann**	6679	Synthesis of diarylic compounds by palladium catalyzed reaction of aromatic triflates with boronic acids
Elmar Vilsmaier, Rainer Adam, Peter Altmeier, Joachim Fath, Hans-Josef Scherer, Gerhard Maas and **Oliver Wagner**	6683	Functionalized chloroenamines in aminocyclopropane synthesis—IV. A synthesis for bicyclic lactams from carbamoylated chloroenamines—the result of a tandem ring contraction-cyclization process
André Lubineau and **Yves Queneau**	6697	Stereochemical variations in aqueous cycloadditions using glycoorganic substrates as a consequence of chemical manipulations on the sugar moiety
Manuel Bedoya Zurita, Alain Ahond, Christiane Poupat et **Pierre Potier**	6713	Première synthèse totale de la girolline
G. A. Wolff, J. M. Trendel and **P. Albrecht**	6721	Novel monoaromatic triterpenoid hydrocarbons occurring in sediments
S. K. Pal	6729	Determination of regioselectivity of cycloaddition reactions from electronegativity of the active centres
Boris Šket and **Marko Zupan**	6741	The effect of the alkoxy group and the structure of the cycloalkene on 2+2 photocycloaddition to alkoxy substituted pentafluorobenzene
Alessandra Napolitano, Marco d'Ischia, Giuseppe Prota, Thomas M. Schultz and **Leszek J. Wolfram**	6749	Oxidation of 4-, 6- and 7-hydroxyindoles
P. Van Doren, D. Vanderzande, S. Toppet and **G. Hoornaert**	6761	Diels-Alder reactions of pyrano[3,4-*b*]indol-3-ones with olefinic compounds: synthesis of (1,2-dihydro)carbazoles
Ian T. Barnish, Colin W. G. Fishwick, David R. Hill and **Csaba Szantay, Jr**	6771	Generation and cycloadditions of 2-(N-acylamino)-1-thia-1,3-dienes. Structural investigations using NMR methods—I
Roberto Ballini, Enrico Marcantoni and **Marino Petrini**	6791	A new general synthesis of sulfones from alkyl or aryl halides and *p*-toluenesulfonhydrazide
B. de Lange, F. van Bolhuis and **Ben L. Feringa**	6799	Asymmetric 1,4-additions to 5-alkoxy-2(5H)-furanones. Enantioselective synthesis and absolute configuration determination of β-amino-γ-butyrolactones and amino diols
Marcello Tiecco, Lorenzo Testaferri, Marco Tingoli and **Donatella Bartoli**	6819	Phenylseleno-lactonization of olefinic nitriles promoted by peroxydisulphate ion oxidation of diphenyl diselenide
Zafeer Ahmad, Pannalal Goswami and **R. V. Venkateswaran**	6833	A formal stereocontrolled synthesis of (±) isoclovene
Benito Alcaide, Joaquin Plumet and **Miguel A. Sierra**	6841	The reaction of α-diketones with primary heteroaromatic amines. Synthesis and reactions of imidazo[1,2-*a*]pyridin-3(2*H*)-ones and *N*-heteroaryl α-iminoketones
M. C. Aversa, P. Bonaccorsi, P. Giannetto and **D. A. Leigh**	6857	Conformational analysis of some 11,12-dihydrodibenz[*b,f*][1,5]-oxazocin-6-one derivatives by NMR spectroscopy

G. Pandey, C. Muralikrishna and U. T. Bhalerao	6867	Mushroom tyrosinase catalysed synthesis of coumestans, benzofuran derivatives and related heterocyclic compounds
Jacek Gawronski, Krystyna Gawronska and Andrzej Katrusiak	6875	Diastereoselective formation of chiral 2,2′-spirobibenz[*d*]chromene derivatives. Evidence from circular dichroism and crystallographic data
Maria Antonietta Casadei, Achille Inesi, Franco Micheletti Moracci and Donatella Occhialini	6885	Electrochemical studies on β-lactams—IV. Electroacetylation of β-lactams
A. E. Frissen, A. T. M. Marcelis, W. C. Melger and H. C. van der Plas	6891	Substituent effects in the intramolecular inverse electron demand Diels-Alder reactions of 5-(*p*-substituted phenyl)-2-(1,1-dicyano-pent-4-yn-1-yl)pyrimidines
	I	Instructions to Contributors

NUMBER 22

	i	Contributors to this issue
	iii	Graphical Abstracts
		TETRAHEDRON REPORT NUMBER 264
Iwao Ojima, Núria Clos and Cecilia Bastos	6901	Recent advances in catalytic asymmetric reactions promoted by transition metal complexes
Yu-hua Hui, J. Kent Rupprecht, Jon E. Anderson, Ya-mei Liu, David L. Smith, Ching-jer Chang and Jerry L. McLaughlin	6941	Bullatalicin, a novel bioactive acetogenin from *Annona bullata* (Annonaceae)
Gregory P. Roth, Christopher D. Rithner and A. I. Meyers	6949	Asymmetric addition to chiral naphthalenes—V. An approach to the chlorothricolide system
Mark J. Kurth and Michael J. Rodriguez	6963	A tandem 1,3-dipolar cycloaddition/electrophilic cyclization sequence: γ,δ-unsaturated isoxazolines as precursors to ring-fused ethers
Barry B. Snider and Brad O. Buckman	6969	Manganese (III) based oxidative free-radical annulations
Ji-ben Meng, De-chao Fu, Xin-Kan Yao, Ru-Ji Wang and Teruo Matsuura	6979	Solid-state photodimerization of coumarin in the presence of a crystal lattice-controlling substance
C. Tschierske, H. Köhler, H. Zaschke and E. Kleinpeter	6987	The anomeric effect of the carboethoxy group in oxygen and sulphur containing heterocycles
H. Spreitzer, G. Buchbauer and Ch. Püringer	6999	A study of selective oxime reduction methods
Wilfried A. König, Petra Evers, Ralph Krebber, Stefan Schulz, Charles Fehr and Günther Ohloff	7003	Determination of the absolute configuration of α-damascone and α-ionone from black tea by enantioselective capillary gas chromatography
Amit Chakrabarti and D. P. Chakraborty	7007	A novel access to bis-carbazole alkaloids: substituent effect on the efficiency and regioselectivity in BF_3-Et_2O mediated intermolecular coupling of pyranocarbazole alkaloids
Stephen G. Pyne, Peter Bloem and Renate Griffith	7013	Conjugate addition of amines to (*Rs*)-10-isobornyl vinyl sulfoxides

Marian Mikołajczyk and **Piotr Bałczewski**	7023	Total synthesis of (±)-sarkomycin
A. V. Rama Rao, D. Subhas Bose, M. K. Gurjar and **T. Ravindranathan**	7031	3-Butene-1,2-diol: an attractive precursor for the synthesis of enantiomerically pure organic compounds
Belen Abarca, Amparo Asensio, Gurnos Jones and **Deborah J. Mouat**	7041	Triazolopyridines—IX. The synthesis of 7-amino(1,2,3)triazolo(1,5-*a*)pyridines
Enrico Baciocchi, Alessandro Piermattei, Cesare Rol, Renzo Ruzziconi and **Giovanni Vittorio Sebastiani**	7049	One electron oxidations of benzyl and 2-phenylethyl phenyl ethers. The fate of the intermediate radical cations
Andrew P. Shawcross and **Stephen P. Stanforth**	7063	Observations on the Vilsmeier reaction—II. The anomalous reaction of *N*-benzyl *N*-cyanoethyl-4-methylaniline derivatives
Antonio Ballesteros, Manuel Bernabé, Carmen Cruzado, Manuel Martín-Lomas and **Cristina Otero**	7077	Regioselective deacylation of 1,6-anhydro-β-D-galactopyranose derivatives catalyzed by soluble and immobilized lipases
Neil S. Isaacs and **Ghazi Najem El-Din**	7083	Cycloadditions and other reactions of phospholes under high pressures
R. Yadla, H. Rehman, Jampani Madhusudana Rao and **V. K. Mahesh**	7093	Aromatic vs diene reactivity of 2(1H)-pyridinone and its derivatives
Daniele Marton, Pierangelo Slaviero and **Giuseppe Tagliavini**	7099	Organotins as etherification catalysts—III. Etherifications and hydro-hydroxy-eliminations promoted by butyltin trichloride
Adrie A. M. Houwen-Claassen, A. J. H. Klunder, M. G. Kooy, J. Steffann and **B. Zwanenburg**	7109	Synthesis of 4- and 5-substituted 10-oxatricyclo[5.2.1.$0^{2,6}$]decadi-enones. Functionalization of the cyclo-adduct of furan and cyclopenten-1,4-dione
Adrie A. M. Houwen-Claassen, A. J. H. Klunder and **B. Zwanenburg**	7134	Synthesis of cyclopentadienone epoxides from 10-oxatricyclo-decadienones
Adrie A. M. Houwen-Claassen, A. J. H. Klunder and **B. Zwanenburg**	7149	Selective bis-hydride reduction of tosylmethyl-substituted tricyclic enones by lithium aluminium hydride synthesis of α-methylene cyclopentenoids
Steven V. Ley, Neville J. Anthony, Alan Armstrong, M. Gabriella Brasca, Trafford Clarke, David Culshaw, Christine Greck, Peter Grice, A. Brian Jones, Barry Lygo, Andrew Madin, Richard N. Sheppard, Alexandra M. Z. Slawin and **David J. Williams**	7161	A highly convergent total synthesis of the spiroacetal macrolide (+)-milbemycin β_1
Zbigniew Kaluza and **Marek Chmielewski**	7195	Synthesis of 1-oxabicyclic β-lactam precursors from 4,6-O-benzyl-idene-D-allal
	I	Instructions to Contributors

NUMBER 23

i Contributors to this issue

iii Graphical Abstracts

TETRAHEDRON REPORT NUMBER 265

Motohiro Nishio and **Minoru Hirota** 7201 CH/π Interaction: implications in organic chemistry

---

Shin-ichi Kodato, Masako Nakagawa, Kiyoshi Nakayama and **Tohru Hino** 7247 Synthesis of cerebroside B_{1b} with antiulcerogenic activity—I. Synthesis of ceramides with optically active α-hydroxypalmitic acids

Shin-ichi Kodato, Masako Nakagawa and **Tohru Hino** 7263 Synthesis of cerebroside B_{1b} with antiulcerogenic activity—II. Total synthesis and determination of absolute configuration of cerebroside B_{1b} and its stereoisomers

Yukie Kitamura, Makoto Nishizawa, Koh Kaneko, Motoo Shiro, Yuh-Pan Chen and **Hong-Yen Hsu** 7281 New steroidal alkaloids from *Fritillaria ussuriensis* Maxim. Pingbeinone and heilonine

Bin Ye and **Yu-Lin Wu** 7287 Syntheses of carba-analogues of qinghaosu

Karlheinz Seifert, Hinrich Meyer, Sigrid Härtling and **Siegfried Johne** 7291 Nuclear magnetic resonance spectroscopy of some dihydrolysergic acid derivatives

Jun'ichi Tanaka, Tatsuo Higa, Gérald Bernardinelli and **Charles W. Jefford** 7301 Sulfur-containing polybromoindoles from the red alga *Laurencia brongniartii*

P. Metz 7311 Preparation of enantiomerically pure 3-endo-sulfonylmethyl substituted bicyclo[2.2.1]heptane-2-endo-carboxylic acids

M. Saniere, Y. Le Merrer, B. Barbe, T. Koscielniak and **J. C. Depezay** 7317 Syntheses of enantiomerically pure 9(*S*)- and 9(*R*)-HETE from D-mannitol. Use of a malic dialdehyde equivalent

V. A. Bakulev, A. T. Lebedev, E. F. Dankova, V. S. Mokrushin and **V. S. Petrosyan** 7329 Two directions of cyclization of α-diazo-β-dithioamides. New rearrangements of 1,2,3-triazole-4-carbothiamides

Lionel R. Milgrom, Nasrin Mofidi and **Anthony Harriman** 7341 Facile aerial oxidation of unsymmetrical *meso*-tetraaryl porphyrins with 3,5-di-*t*-butyl-4-hydroxyphenyl (DtB4HP) and 4-nitrophenyl (4-NP) substituents

J. S. Yadav, Sudha V. Mysorekar and **A. V. Rama Rao** 7353 Synthesis of (1*R*)-(+)-*cis*-chrysanthemic acid

A. V. Rama Rao, T. G. Murali Dhar, D. Subhas Bose, T. K. Chakraborty and **M. K. Gurjar** 7361 A versatile protocol for β-hydroxy-α-amino acids: an application to (4*R*)-4-[(*E*)-2-butenyl]-4,N-dimethyl-L-threonine (MeBmt)

L. Garlaschelli and **G. Vidari** 7371 Synthetic studies on biologically active natural compounds—I. Stereospecific transformation of uvidin A into (-)-cinnamodial

L. Garlaschelli, G. Mellerio and **G. Vidari** 7379 Synthetic studies on biologically active natural compounds—II. Correlation of cinnamodial with uvidin A and stereospecific transformation into(-)-pereniporin A

Paweł Kafarski and **Barbara Lejczak** 7387 Mixed carboxylic-carbonic anhydride method in phosphono peptide synthesis

S. Cardani, C. Gennari, C. Scolastico and **R. Villa**	7397	Asymmetric synthesis of 3,4-*cis*-substituted β-lactams via chiral norephedrine-derived oxazolidines
Tarik N. Rawdah	7405	Iterative force-field calculations of cyclodecanone
Giovanni Petrillo, Marino Novi, Giacomo Garbarino and **Marcos Filiberti**	7411	The reaction between arenediazonium tetrafluoroborates and alkaline thiocarboxylates in DMSO: a convenient access to aryl thiolesters and other aromatic sulfur derivatives
N. Xaus, P. Clapés, E. Bardají, J. L. Torres, X. Jorba, J. Mata and **G. Valencia**	7421	New enzymatic approach to the synthesis of convenient aspartic acid intermediates in peptide chemistry. Synthesis of N-benzyloxycarbonyl-L-aspartic acid β-allyl ester
Luca Bruché and **Gaetano Zecchi**	7427	The intramolecular nitrile imine cycloaddition route to pyrazolo-[1,5-*a*][1,4]benzodiazepines
G. H. Veeneman, L. J. F. Gomes and **J. H. van Boom**	7433	Synthesis of fragments of a *Streptococcus pneumoniae* type-specific capsular polysaccharide
Mauri Lounasmaa and **Reija Jokela**	7449	Stereoselective synthesis of DL-18,19-dihydroantirhine and DL-3-*epi*-18,19-dihydroantirhine
Jack E. Baldwin, Tania Miranda, Mark Moloney and **Tuncer Hokelek**	7459	Amino acid synthesis using (L)-pyroglutamic acid as a chiral starting material
Jan Epsztajn, Adam Bieniek, Mieczysław W. Płotka and **Krzysztof Suwald**	7469	Application of organolithium and related reagents in synthesis—VII. Synthesis and metallation of 4-methoxypicolin- and 2-methoxyisonicotin-anilides. A useful method for preparation of 2,3,4-trisubstituted pyridines
Manuel Marcos, Mary Carmen Villaverde, Ricardo Riguera, Luis Castedo and **Frank Stermitz**	7477	The solution structure of alfileramine. Nuclear magnetic resonance spectroscopy and molecular mechanics study
Egle M. Beccalli, Alessandro Marchesini and **Tullio Pilati**	7485	Synthesis and reactivity of 2-dimethylamino-4-alkenyl-1,3-oxazin-6-ones
M. Balón, M. C. Carmona, M. A. Muñoz and **J. Hidalgo**	7501	The acid-base properties of pyrrole and its benzologs indole and carbazole. A reexamination from the excess acidity method
M. Bucciarelli, A. Forni, I. Moretti, F. Prati, G. Torre, G. Rosnati and **P. Bravo**	7505	Biotransformations of fluorinated sulphenyl and sulphonyl compounds
Róża Antkowiak, Wiesław Z. Antkowiak and **Karol Bruzik**	7515	The structure of sultone formed in Reychler's reaction
Christian Sund and **Jyoti Chattopadhyaya**	7523	Intra- and intermolecular nucleophilic phosphorus-sulfur bond cleavage. The reaction of fluoride ion with O-aryl-O,S-dialkyl-phosphorothioates, and the degradation of phosphorothioate linkage in di-ribonucleotides by the vicinal 2'-hydroxyl group
A. Sulpizio, M. Mella and **A. Albini**	7545	Hydrogen abstraction from the isomeric cymenes
Johannes N. Zonjee, Henk de Koning and **W. Nico Speckamp**	7553	Diastereoselectivity in the cyclization of 1-[2-(benzyloxymethyl)-3-butenyl]-5-ethoxy-2-pyrrolidinones

Paul M. Booth, Howard B. Broughton, Mark J. Ford, Christina M. J. Fox, Steven V. Ley, Alexandra M. Z. Slawin, David J. Williams and **Peter R. Woodward** — 7565 Preparation of β-ketomacrolactones and β-ketodiolides using *S*-*t*-butyl 3-oxobutanethioate and *S*-*t*-butyl 4-diethylphosphono-3-oxobutanethioate

Ronald Grigg and **Paul Armstrong** — 7581 X=Y—ZH systems as potential 1,3-dipoles—XXV. Intramolecular cycloaddition reactions of pyridoxal imines of ε-alkenyl α-amino esters. A possible new approach to pyridoxal enzyme inhibition

Ronald Grigg and **D. Vipond** — 7587 4-Phenylsulphinyl- and 4-phenylsulphonyl-coumarins as 2π-components in cycloaddition reactions

Miguel A. Miranda, Jaime Primo and **Rosa Tormos** — 7593 Photochemistry of 7-acetoxybenzopyran derivatives. Synthesis of eupatoriochromene and encecalin

Juma'a R. Al Dulayymi and **Mark S. Baird** — 7601 Generation and trapping of vinylcarbenes at ambient temperature: a route to functionalised vinyl- and allylidene-cyclopropanes

Mauri Lounasmaa, Reija Jokela, Birgit Tirkkonen and **Tarja Tamminen** — 7615 Stereoregulation in the preparation of 1- and 3-monosubstituted 1,2,3,4,6,7,12,12b-octahydroindolo[2,3-*a*]quinolizines

Apurba Datta, Dinah Pooranchand, Hiriyakkanavar Ila and **Hiriyakkanavar Junjappa** — 7631 Darzen's reaction on oxoketene dithioacetals: a new versatile synthesis of substituted and annelated furan-2-carboxylates

NUMBER 24

i Contributors to this issue

iii Graphical Abstracts

xi Tetrahedron Prize for Creativity in Organic Chemistry

7641 Corrigendum

TETRAHEDRON REPORT NUMBER 266

Philip C. Bulman Page, Monique B. van Niel and **Jeremy C. Prodger** — 7643 Synthetic uses of the 1,3-dithiane grouping from 1977 to 1988

A. R. Oyler, M. G. Motto, R. E. Naldi, K. L. Facchine, P. F. Hamburg, D. J. Burinsky, R. Dunphy and **M. L. Cotter** — 7679 Characterization of autoxidation products of retinoic acid

John N. Scholz, Paul S. Engel, Christopher Glidewell and **Kenton H. Whitmire** — 7695 Reaction of hydroxylamine with benzenesulfonyl chloride. X-ray crystal structure of Piloty's acid and other benzenesulfonylhydroxylamines

J. Michael Chong and **Eduardo K. Mar** — 7709 Enantioselective syntheses of *endo*- and *exo*-brevicomin via α-alkoxystannanes

Sayed Ali Naghi Taheri, R. Alan Jones, Santokh Singh Badesha and **Majed M. Hania** — 7717 Pyrrole studies—XLI. Reactivity of 3,4-diformyl-2,5-dimethylpyrrole with diaminoalkanes. An unusual formation of 2-azafulvenes

Jinjun Liu, Masako Nakagawa and **Tohru Hino** — 7729 The Pictet-Spengler reaction of N_b-hydroxytryptamines and cysteinals—I. Isolation of tetracyclic intermediates and formation of optically active N_b-hydroxy-tetrahydro-β-carbolines

Takashi Ushio, Tsuyoshi Kato, Kehong Ye and **Akira Imamura**	7743	An analysis of the through-bond interaction using the localized molecular orbitals with *ab initio* calculations—V. HOMO energy levels of many propellane compounds
Gerd Schnorrenberg and **Helmut Gerhardt**	7759	Fully automatic simultaneous multiple peptide synthesis in micromolar scale—rapid synthesis of series of peptides for screening in biological assays
Véronique Faivre, Christine Lila, Alfred Saroli et **Alain Doutheau**	7765	Hétérocyclisations des hydroxy-6 méthoxy-2 hexène-2 et heptène-2 oates de méthyle
F. Dardoize, C. Goasdoué, N. Goasdoué, H. M. Laborit and **G. Topall**	7783	4-Hydroxybutyric acid (and analogues) derivatives of D-glucosamine
J. Nasielski, S. Heilporn, R. Nasielski-Hinkens, B. Tinant and **J. P. Declercq**	7795	An unexpected ring-opening in the Reissert reaction on 2,3-diphenylquinoxaline-N-oxide
Rosa Maria Claramunt, Jose Elguero, Maria Jose Fabre, Concepcion Foces-Foces, Felix Hernandez Cano, Irmina Hernandez Fuentes, Carlos Jaime and **Concepcion López**	7805	A conformational study of bis-, tris- and tetrakis-pyrazolylmethane. Crystallography, L.S.R., dipole moments and theoretical calculations
R. Pleixats, M. Figueredo, J. Marquet, M. Moreno-Mañas and **A. Cantos**	7817	The search for new biochemical photoprobes—II. The nucleophilic photosubstitution of 2-fluoro-4-nitroanisole
Enrico Angeletti, Roberto Baima, Carlo Canepa, Iacopo Degani, Glauco Tonachini and **Paolo Venturello**	7827	Effect of lithium complexation by 12-crown-4 on the regioselectivity of the attack of *gem*-dichloroallyl-lithium on some carbonyl compounds
Amanda Johns, John A. Murphy and **Michael S. Sherburn**	7835	Intramolecular reactions of allyloxy radicals
Johannes C. S. Malan, Jacobus A. Steenkamp, Desmond A. Young and **Daneel Ferreira**	7859	Oligomeric flavanoids—XIII. Synthesis of profisetinidins based on (-)-robinetinidol and (+)-epifisetinidol
Barbara Zajc and **Marko Zupan**	7869	Bromination of aromatic molecules with polymer supported reagents
Ian T. Barnish, Colin W. G. Fishwick, David R. Hill and **Csaba Szantay, Jr.**	7879	Generation and cycloadditions of 2-(N-acylamino)-1-thia-1,3-dienes—II. Rationalization of reactivity using an FMO approach
S. H. Goh, A. Razak Mohd Ali and **W. H. Wong**	7899	Alkaloids of *Leuconotis griffithii* and *L. eugenifolia* (Apocynaceae)
Géza Szilágyi, Péter Mátyus and **Pál Sohár**	7921	Studies of pyridazine compounds—XXV. Reinvestigation of acylation of pyridazinylhydrazones
A. M. Celli, D. Donati and **M. Scotton**	7929	Spiro-dihydrofuran-pyrazolidinones from tetraacetylethylene and azo-dicarbonyl compounds
Mercedes Amat, Enric Sanfeliu and **Joan Bosch**	7939	The Fischer indolization of 4-acetonyl-2,6-piperidinediones
N. Atanes, L. Castedo, A. Cobas, E. Guitián, C. Saá and **J. M. Saá**	7947	The intermolecular benzyne cycloaddition (IBC) approach to 7-substituted aporphinoids. Mechanistic considerations
	I	Instructions to Contributors